

POPULAR Computing WEEKLY

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13-19 November 1986

Vol 5 No 46

Amstrad axes hard disc guarantee

Full story on page 4

**SPECIAL
supplement**

THE PERIPHERALS BUYERS' GUIDE

The best mice, monitors,
modems and printers
around - starts page 31



FEATURES

Acorn's Master Compact
(below) reviewed, plus
Firebird's Sentinel and
Ariola's Bard's Tale in colour



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CBM-64/128

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HARDWARE ▶



16 Master Compact

The latest Acorn machine to be based on BBC technology is aimed at the mass market. Duncan Evans assesses its chances.

◀ SOFTWARE

20 Model Universe

CAD comes to the Amstrad CPCs from Amnor.

Musicsoft

Buckworth's Musicsoft Collection contains several programs to aid your musical compositions. Mark Jenkins reports.

19 Artroom

Specifically written for the Master Compact in conjunction with Acorn's parent company Olivetti, Oliver's Artroom is a black and white drawing package.

GAMES ▶

23 Reviews

Feetied's *Sardonic*, *The Bard's Tale* from Jurassicsoft, Pegasus McNeill's *Colour of Magic*, 57 *Knight* from Eidossoft, *Begory*, the latest from St Brides School, and more.

27 Arcade Action

28 Adventure Corner

SPECIAL
SUPPLEMENT
PERIPHERALS
BUYERS' GUIDE

31 The latest wave of video image digitisers.

32 Computer control via the mouse.

41 Behind the screens - choosing a monitor for your system.



45 From thermal to daisywheel, a survey of printers.

49 Selecting the right modem - a guide to what's available.

◀ PROGRAMMING

52 BBC

New fonts for the BBC from R Groom.

53 QL

For joggies everywhere, keep track of your running speed.

53 Commodore 64

Geep at the graphics of Steven Patsullo's UFO.

57 Amstrad PCWs

Part two of our invaluable card index database.

59 Spectrum

Championship Bowls reaches its thrilling climax.

60 Bytes and Pieces

61 Peek and Poke

REGULARS ▶

6 News Desk

63 Communications

64 Chess Board

62 Soundcheck

74 New Releases

78 Ziggurat, Hackers

Editor Christine Perkins. News editor John Leslie. Features editor John Cook. Technical editor Duncan Evans. Production editor Magdalen Boscawen. Supplements editor Christopher Jenkins. Supplements designer Barbara Poppi. Advertisement and Promotions manager Simon Langman. Resident advertisement and magazine manager David Goss. Advertisement executive Jon Boscawen. Classified executive Rodney Woodley. Editorial secretary Antonette O'Dwyer. Administration Secretary Sylvia Smith. Managing editor Peter Whitlock. Publishing director Jerry Ireland. Published by Sumner Publications Ltd, 13-15 Little Newport Street, London WC2E 8PP. Tel 01-437 4343. Telex 256215. Fax 01-439 0081. Typeset by Magazine Typesetters, 8 Panel Court, East Fortune, Andover, Hampshire. Printed by McCorquodale Magazines, Andover, Hampshire. Distributed by S M Distribution, London SW9S. Tel 01-276 0811. Telex 331543. © Sumner Publications Ltd 1988. ISSN 0260-0908.

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ABC

Please do not submit articles. Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original. It is breaching the law of copyright to copy programs out of other magazines and submit them here - we please do not be tempted. We cannot guarantee to return your programs - we please do not send your only copy. Magazine Popular Computing Weekly cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

Amstrad axe for warranty

AMSTRAD is taking steps to minimise its liability for any problems users have with its hard disc PCs. A recent circular went out to PC dealers saying that customers are being "strongly advised" to purchase a maintenance contract along with the PC, and states that: "in the event that units are sold without professional and approved service cover neither Amstrad nor the distributors can be held liable for the warranty of the hard disc mechanism".

According to a spokesman this means that the user's only comeback is against the dealer, and that the dealer cannot claim against Amstrad "unless they can demonstrate that the machines have

been properly handled".

The end user's position is further complicated by Amstrad's decision to place a warning on both the carton and the machine. This describes a maintenance contract as "absolutely essential" and states that "transportation and installation of this system should be carried out by qualified personnel only".

The circular also stresses that it is important "that the retailer or dealer explains the situation to the customer prior to the purchase so that a customer who later encounters difficulties cannot say he was not aware of the position when he bought the machine".

So, if you buy a machine without a maintenance contract and it goes wrong, you will have no warranty.

David Trench, legal adviser to the Consumers Association, felt that there was nothing intrinsically wrong with Amstrad's warnings, and even welcomed the fact that the company was stressing

"maintenance". A maintenance contract would be helpful to a customer trying to prove that a machine was defective when bought, but it's not legally essential, and if the machine was faulty when sold you have recourse against the dealer.

That said, anyone buying an Amstrad hard disc machine would be well advised either to take out a maintenance contract with a or to plan for a third party hard disc unit.

■ Amstrad is still insisting its PCs don't overheat, but is now fitting a fan as standard with its hard disc machines. It can be bought as an extra for the floppy versions for £19.95.

"The fitting of this fan is a waste of money," commented Alan Sugar, "but it will keep some people happy. I recommend that operators switch the fan off. It saves an electricity and won't make any difference to the operation of the machine."



the importance of maintenance. He did, however, feel it was important that "putting right" problems were not clouded by being classified as

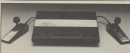
Smiths to take range of Mastertronic titles

FOLLOWING the controversy over the sudden drop in Mastertronic's presence on the Gallup chart last November Computing Weekly, October 20, the budget software company has announced that a selection from its range is now being taken by W H Smith.

It was W H Smith's inclusion on the Gallup panel a month ago which led to Mastertronic's dominance of the chart disappearing dramatically. At that time, W H Smith did not stock any Mastertronic titles.

Alan Shaw of Mastertronic would only say that he "was delighted that our products are now in W H Smith". It is not clear whether it was the retailer or Mastertronic which made the first moves towards including the titles.

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Atari Show launch for new 7800 games console

ATARI is to launch its new games console, the 7800, at the Atari Christmas Show later this month. The machine will cost £69.95, slightly higher than predicted but still under its Sega and Nintendo

rivals, and although it will run more spectacular games than its predecessor, the 2600, it will run all the earlier cartridges, too.

It's expected in the shops before Christmas.

Zenith cuts prices and aims for Amstrad

PC compatible manufacturer Zenith Data Systems is going for Amstrad's jugular, combining swinging price reductions with the launch of a new machine based on the latest 80386 chipsets.

Zenith isn't recommending new retail prices for its PCs, but is instead offering fixed (publishing) dealer prices comparable to Amstrad's. Assuming dealers' mark-ups will be comparable to those on the Amstrad PC this will

mean that floppy-based Zeniths will be rather more expensive than Amstrads, but that hard disc models will be marginally cheaper.

Zenith is currently looking for 100 new dealers to participate in what it terms "Operation Sugar", and is campaigning on the slogan "It's in time you started a 'Sugar-free diet'". The high-end 80386 machine is in the same bracket as Compaq's Desk-PC 386, and is two steps on from the 80286 chip used in the Amstrad PC. Amstrad itself has gone on the record as saying it isn't currently interested in machines based on the 80286 or 80386 chips.

Commodore profit up again

COMMODORE turned in a profit for the second quarter in succession last week, showing post tax profits of \$3.7 million (about \$3.4 million on turnover of \$176 million (£117 million) for the three months to September 30.

The turnover was 11 per cent up on the same period last year, when Commodore lost \$36 million. Earlier this year Commodore turned in a small pre-tax profit, but tax took this back into a small loss.

Boots drops 6128

BOOTS is to drop the monochrome version of the Amstrad 6128 from its range of

monitors in response to poor sales. The company will however continue to stock the colour version of the machine. Most machines still in stock are being reduced to £199 to clear.

CAPTURED

Commodore

£9⁹⁵ Tape £14⁹⁵ Disk

(systems & hardware versions coming soon)



ACTION

Created by Steven Spielberg for American Action AG,
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Microdecker
From science to science fiction

Souped-up Gem plus comms for Amstrad PC

DIGITAL Research has announced a range of new packages running under Gem, its graphics-based operating environment.

Many of the products are tailored for the new Amstrad PC1612, and all of them can be added to the "reasons to buy" list of anyone looking at this latest IBM clone.

Called Gem XMI, the enhancement acts in similar fashion to Apple's Switcher on the Macintosh, allowing you to load several applications into the machine and switch quickly and easily between them.

Gem XMI provides a cut and paste facility between all applications, whether they are

Compiled or running under MSDOS or PCDOS.

DR recommends a minimum hardware system of 512K RAM, and a hard disc, or RAM disc. Gem XMI is currently being shipped as bundled software with some hardware systems, but will be available retail in January for £99.95, excluding VAT.

The second product is an Amstrad-specific communications package, called Gem Comm, which reads like a wish-list of comms software features.

In use under Gem using the XIMP environment to the full, supports just about every kind of transmission rate and data type, handles UR and



Gem XMI plus applications

Hayes protocols, with equal ease, and costs £99.95 including VAT.

The third product is another upgrade, this time to Gem Draw.

The improvements include the ability to treat groups of elements as single structures, building up a complex design a stage at a time, the ability to flip elements horizontally and vertically, and to perform 90-degree rotations, together with enhanced copying, re-

scaling and alignment.

Gem Draw Plus also has added type fonts and sizes.

An Amstrad-specific package will be available from January priced at £99.95 including VAT. Versions for other IBM and compatible systems will cost £199.95 excluding VAT, and will include the full Gem systems software, Gem Desktop (both of which are bundled with the Amstrad) and the Gem Draw Business Library.

Palace seeks staff for major expansion

PALACE Software, until now thought of as one of the more shy and retiring of the games software houses, has expansion plans and is looking for programmers and designers.

According to Palace managing director Pete Stone there's no real upper limit to the number of people the company will be recruiting, not because Palace has an infinite quantity of money but "because it's unlikely that we

will be so inundated that an upper limit will be reached."

Part of the expansion program will involve increased work on the IBM and XT, which Stone sees as the machines of the future, and he feels they will require a different kind of program. "In the States, games are played by people in their 20s and 30s," he says, "and things will begin to change in Europe as well."

The market will need a more thoughtful type of game, "high simulations, adventure type games, mind games or puzzle games". At the moment he sees the ST as the key to this, although the Amstrad PC is likely to follow shortly.

Peter stricken Spectrum, Commodore and CPC owners can, however, breathe a sigh of relief, although he sees their market eventually disappearing as he feels they could be around for as long as another five years, and they'll continue to get software support.

Amstrad defies yen and cuts the cost of its 3 inch discs

AMSTRAD has reduced the price of its CPZ blank discs to £2.99 in what is described as a "long predicted" move. The company says that it's previously been impossible to reduce the price "due to a general shortage of discs plus high production and freight costs", but now claims to have overcome these problems.

Most of the company's 3-inch discs are, however, made in Japan, and the strength of the yen was recently cited by Amstrad as a prime reason for a £2 per cent price rise on the PC. Quizzed on this paradox an Amstrad spokesman said the company had been able to cut the prices by "dollar sourcing" but refused to be drawn further.

It is, however, unlikely that a similar breakthrough will occur on the Amstrad PC's price while demand remains high.

Footnotes

GREAT Presentations of Our Time Volume 5, Number 15. At last week's Amstrad in the City seminar AGT marketing director David Randall opened his mouth and put a foot in it with "we are in fact a marketing distributor."

Sticking it to the audience like this is all very well, but there is a danger that people will start associating networks with fastest works...

At the same seminar organizer C/NIP's programme showed how fast things can move in the computer industry. At Zen the introduction was presented by Richard Bost, managing director, C/NIP Computers, but by 4.30pm "Robin Ards, managing director, C/NIP Computers" was able to bring proceedings to a close.

The proceedings had incidentally been held in the Sugar Room at Whitbread's brewery - this may qualify as the tackiest place of meeting of the year, provided nobody tells The God Alan what brewers do with sugar...



Stone: Moving up

Amstrad bids for stardom in the City

AMSTRAD'S furious reaction to recent suggestions that its PC could be unreliable speaks volumes about the company's plans for the machine. In order to become a world force in business computing, Amstrad has to sell large volumes to big companies, in the corporate market, and win

processor. The PC runs word processing software, but it's not really a word processor."

Miller may be privy to some information that shows that the 286 processor is more suited to word processing than the 8086, but the fact of the matter is that both the PCW and the PC are computers, and Amstrad can't sustain the argument that they're not for long.

So while the PC is the logical successor to the PCW in the small business market Amstrad will have to work if it's to break through into big business, and although Amstrad itself didn't recognise last week's seminar this is basically what it was all about.

The speakers were keen to scotch any stories of unreliability. David Randall, marketing director of ADT, said that his company had tested the PC with "a wide range of products, and found no difficulties with either overheating or the power supply."

But he did testify admit that the rating of the PC's power supply could be too low for some tasks. Installing a Western Digital hard disk in exchange for one of the machine's floppies, for example, would result in a 40 per cent reduction in power draw, and this makes it "ideal for use in the Amstrad."

Similarly he extolled the virtues of high capacity hard drives. "They have their own independent power supplies, so the power limitations on the Amstrad are not a problem."

Randall claims to have tested products in conditions "in excess of Amstrad's rating" for the power supply without running into problems, but it's clear that Amstrad's power supply doesn't have the output of IBM's.

In the same vein Malcolm Miller pointed out that Amstrad had taken PCs and "taken them beyond normal use, and beyond what some of the press have written about," but this isn't exactly the point.

If an expansion card draws more power than is available a fuse will blow, and this will happen no matter how many cards you put in a machine.

The power problem of course isn't exactly Amstrad's fault. Most IBM add-on cards will run in the PC without problems, but certain combinations draw too much power, and can cause trouble under certain circumstances.

The reason the problem arises is because the original IBM had a large chip set drawing a fairly substantial amount of power and had card slots designed to cope with similarly thirsty expansion cards. Amstrad's systems are technologically more potent, and both the power supply and the card slots are rated lower than those on the IBM. So an expansion combination that pushes the IBM PC to its limit will almost certainly blow the Amstrad's fuse.

If you view this as Amstrad paying for IBM's deficiencies you should start to understand the former's indignation on the subject. Amstrad also has the right to be slightly

irritated by the way the matter has been blown up. Practically all expansion cards will work with the Amstrad, and only a few, relatively old designs will cause problems, usually when several are being run together.

IBM itself has got off lightly in the compatibility stakes purely because it set the standard in the first place, and since then it has launched four machines (the Junior, PC Portable, AT and Convertible) which aren't fully compatible with the PC.

Amstrad's record is short, but so far better, and the company has some hopes of supplanting IBM. "The standard is going to be with us for many years," says Miller.

"Some people have termed it the Amstrad standard. Maybe IBM will leave it alone and concentrate on other areas."

He didn't specify who had termed it the Amstrad standard, and at the moment is unlikely to convince many people that IBM is on the point of walking away from the PC mass market, but given the power of the opposition his uncharacteristic use of the word "maybe" is understandable. So far Amstrad has had to cope with noisy rumours and a declining share price, but what would happen if IBM really started to get worried?



Miller: A heated defence

less the company can contain the whispering campaign about the PC it won't be able to persuade the big buyers to bite.

Whether it succeeds or fails Amstrad's commitment to the corporate market has implications for its other machines. As the company concentrates on the business machines the home machines are liable to suffer from neglect, and the PC's launch inevitably spells trouble for the PCW.

The price rise on the PC will help differentiate it from the PCW in the short term, and a massive advertising campaign for the latter will also help shore up sales, but their roles are still too similar for them both to survive in the long term.

Amstrad marketing manager Malcolm Miller was talking about the two last week at an Amstrad in the City seminar organised by CyW Computers. The PCW, he said, "is there as a word





More power from Moneywise

MONEYWISE Software, which creates PP Moneywise, has released a new version of the program for the Amstrad PC 1612. The program is called Moneypower and costs £99. It retains all the original product's features and also contains extras, including a fully prepared cash-flow model with graphs and projected profit and loss.

Details from Moneywise Software, 889 London Road, North Charn, Surrey GU9 9SL. Tel 01-337 0863.

Price cut on Amiga spreadsheet

GRAPHIC has cut the price of *Legend*, its integrated spreadsheet and time planning package, from £248 to £149 to coincide with Commodore's current special offer on the Amiga. "We feel that Com-

modore has made the right move and are going to sell a lot more machines with this price cut," says Gexco marketing manager Ian McCall. "With *Legend* at £149 we will now see it become the most important spreadsheet on the Amiga."

Details from Gexco, 65 Banbury Road, Oxford OX2 8PE. Tel 0885 516281.

Pace launches smarter modem

PACE has introduced *Series Four*, a new range of intelligent data modems. The modems are designed to cater for data transmission at 1200 and 2400 baud full duplex, but also include V21/V23 for use with 300/300 and 1200/75 split baud rates. The modems have auto dial and auto answer, plus full speed buffering, local rate detect facilities and a 32 character LCD.

They also have a printer port fitted as standard, allowing incoming messages to be

received and dumped to a printer even if the modem is being used independently of a host computer. The basic model is £385, while adding 1200/1200 brings the price up to £479 and 2400/2400 to £516.

Details from Pace Micro Technology, Juniper View, Alton Road, Bradford BD15 7AG. Tel 0274 488271.

Be your own AI expert

FAL Software has produced a £49.95 expert systems package running under *MSDOS* and *Concurrent Dos*. *Art of Faller* is based on *Intelligence I*, a software package that uses artificial intelligence techniques to build expert systems, and although it's presented as a teaching package allows users to develop full-scale expert systems.

It will operate on the IBM PC and compatibles and Apri-

net machines, and consists of two discs, a large-free manual and function key templates.

Details from FAL Software, PO Box 24, Oldenstone House, Ashley Road, Aldersham, Cheshire WA15 9TD.

Online typesetting

ELECTRONIC mail service One-to-One has linked up with computer bureau Wordstream to provide a typesetting service. Customers send raw copy to Wordstream via One-to-One with codes to indicate size, style and fonts and Wordstream then runs it through a typesetting machine.

Wordstream claims this system can save up to 50 per cent of typesetting costs, and guarantees to turn the copy round within an hour of receipt.

Details from Wordstream, Victoria Chambers, 40 Vale Road, Dournemouth BH1 3JA. Tel 0202 294347.



Diary Dates

NOVEMBER

15 November

Wales and West Computer Show

Central Hotel, Cardiff
Details: All types of home computer and support

Price: £1 adult, 50p children
Organiser: Preston Exhibitions, 0658 660065

21-23 November

The Commodore Computer Show

Round, Hammersmith, London W6
Details: Hardware, software and peripherals for the Commodore range of computers

Price: £2 adults, £2 children, £1 discount for advance booking
Organiser: Database Exhibitions, 081 468 8825

23 November

8805 Show

Old Hall of the Royal Horticultural Society

Details: Show for the Super and Tandy Colour Computers
Price: £2 M adult, £1.75 children,

reduction for advance purchase
Organiser: Jossy Pops, Monrovia, 0125 88025

28-30 November

The Atari Christmas Show

New Horticultural Hall, Grosvenor Street, Westminster, London SW1

Details: Hardware, software and peripherals for the Atari range of computers

Price: £2 adult, £2 children, £1 discount for advance booking
Organiser: Database Exhibitions, 081 468 8825

29 November

Wright Computing Fair

Apex Town Hall, Hyde, Chx
Details: Local show covering wide range of subjects
Price: N/A

Organiser: Wright Computing Users Group, 18 John Street, Hyde, Tel of Wgtn R020 271

Prices, dates and venues of shows can vary and you are therefore strongly advised to check with the show organiser before attending. *Wright Computing* gladly cannot accept responsibility for any alterations to show arrangements made by the organisers.

Clearly moral

The discussion on software copying devices (Appended to *Amateur, Letters*, October 30) is very interesting, but here's the catch: copyright.

A person buys a program from a firm which doesn't give permission for back-up copies to be made. The user makes a back-up for their own peace of mind, with no distorted intent, is any offence committed?

According to you, yes. But I say, no. There is nothing "dodgy" about it. The Copyright Act, 1968, permits what is called "fair dealing", for, amongst other things, private study, research or review. Fair dealing means what it says: if you're moral, you're in the clear.

Peter S. Brathwaite
Colchester

See this week's Ziggurat.

The Shadow replies

Anyone who has typed in my Shadow Ram Action program from Bytes and Pieces in *Popular*, October 23, must be a little puzzled as to what the program actually does and how to use it.

Unfortunately, in cutting my original documentation from an excessive three pages to two paragraphs this information somehow went astray. Here, for anyone who is interested, is a more complete program description.

Firstly, the program will run on any Atari with at least 64K. The program does access the additional bank-switched 64K of the 130002, but allows the use of Ram in the 40-60K area, normally occupied by the Basic and OS Roms.

To use the program type in the listing as printed. Run it and the program will re-write itself. Now delete line 20 and the remaining line, consisting mainly of graphic characters, is all that is needed to use the program.

It is used in the form *X=User (MATH)@0*, source, destination, pages and can be used to move pages of memory, eg. screens in and out of the shadow Ram.

However, you must be careful not to store anything in the 52-64K area as this is I/O mapped memory used by the Atari's custom chips and corrupting this area is liable to crash the machine.

A W P Crawford
Penicuik

Puzzled by the puzzle?

I write to correct wrong assumptions in your Puzzle section.

In answer to Puzzle No. 228 you state that taking only one ball from any of the three boxes will show the contents of each. This is wrong. Taking a ball from box three will do this as it must contain two identical balls, and the contents of the other two boxes can then be identified.



Before buying *Popular Computing Weekly*, October 30, I was a normal, optimistic computer owner. Now I am an angry, but still a very much optimistic computer owner. I hope this letter will go some way to restoring my hopes for the future of the computer industry.

I was horrified by the piece by Antoni J Shephard in the Ziggurat. His conclusions, that the advanced and extremely computer power offered by the new 16/32-bit computers will fall to attract buyers because of the admittedly sizeable software base of such micro-computing peripherals as the IBM PC are nothing short of lunacy.

True, many 'new' machines based on 8-bit technology have been launched in the past months, but to write-off such machines as the ST, Amiga and the Macintosh as "unexciting" products of someone content with unhelpfully expensive, under-powered IBM PC clones.

Like nearly all ST owners, I

The angry, but op

am enamoured with its capabilities. It is fast, reliable, friendly, inexpensive and has a rapidly-growing software base. Can any IBM machine match all these five? I doubt it. The Amstrad PC and other clones will be okay for a few years, but the limit to Ram is only 640K, fast, and will continue to, seriously test the patience of users. The ST, with its maximum address range of 16MB, will not have such problems until well after its useful lifespan. The list of ST-specific software now runs to well over 800 titles, far in excess of the number available for the PC in its first year. These titles are cheap, friendly, usable and do not contain any serious bugs. I can think of no ST software made unusable by bugs, as Mr Shephard is quite clearly a material man.

Now, to the Apple IIGS and its elder brother, the Mac. The GS may not catch on over here, where the old Apples never really got anywhere, but do not dismiss its poten-

In your illustration you show the effect of taking a red ball from box one, which identifies each box; however, if the ball taken from box one is white then its partner could be red or white, making identification impossible.

Nigel Percival
Cardiff

The point about only removing one ball to determine the contents of each box, is that the ball must be removed from the box labelled White/Red. As each box is wrongly labelled, there must be two balls of the same colour in that box. If you pick a red ball from

Puzzle

Puzzle No. 228

"Here's a riddle!" remarked Jamie to Ben. Selecting a piece of chalk he wrote the numbers 2, 15 and 24 on the blackboard. "Now I bet that you can't tell me the next number in that series!" said Jamie confidently.

Ben thought for a while, made a few calculations, scratched his head, and then declared, "I can't see any connection between them. So what's the answer?"

"Well," replied Jamie, "each of these numbers is equal to half of the sum of its digits, multiplied by the product of its digits. For example, twenty-four is half of six times eight."

Ben was unimpressed, but Jamie continued: "Now you will be able to tell me

the next number in the series!"

But Ben wasn't able to. Can you?

Solution to Puzzle No. 228

Answer: The multiplication was $7276 \times 6432 = 46766672$. The colours of the numerals in the product was therefore Y R R B B B R G.

Solution: We need to find the values of the coloured numerals: red, green, blue and yellow. We know the position of each type of digit in the multiplication sum, so by assigning values to the variables R, G, B and Y, various possible products can be computed. These are tested in turn to see if they consist of eight digits, each of the digits is one of the digits (colours) being used, and that the left-hand digit is the same value as the 'yellow' digit.

This results in only the one answer.

Winner of Puzzle No. 228

The winner this week is M J Coyes of Southfords, Kent, who will receive £10.

Rules

The closing date for Puzzle 228 is December 1st. Answers to a printed please.

1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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optimistic ST owner replies

tal in the American market. The Apple II has a vast software and user base in the States, making the GS quite an attractive proposition to Apple II owners wishing to upgrade. The Mac has an excellent library of software, friendly and powerful though expensive. It remains, quite intentionally, a business computer. And I challenge anyone to find any review of the Mac describing it as a toy.

The Amiga has amazing graphics and sound capabilities, which remain, as yet, untapped by all but a handful of Electronic Arts titles. Amiga software is also much cheaper than on an IBM. Can he defend paying £400 for a wordprocessor? Multi-tasking is installed, though slow for non-graphic work and only limited by memory. A 68020 Amiga will have no such trouble. Commodore needs a good kick up the backside for not making enough of this masterpiece of technology.

His statement that "a machine with no standard

operating system is going to be a dead duck" conforms with the lunacy of his whole argument. I don't recall anyone describing the ST as "a dead duck". The Amstrad CPCs had no standard operating system, neither did the BBC or the Mac. They seem to be flying well for dead ducks, don't they?

Mr Shepherd also ignores the possibilities of the new machines; artificial intelligence, CAD, multi-tasking. All of which are made as difficult as possible by the PC standard. It's about time people started to look at more than just software in making points. True, software markets hardware, but if everyone thought this way, we would all be using PC clones. I am tired of nothing more depressing, can you?

This letter was written on a 1040ST with 137 Word Plus, an excellent, bug-free wordprocessor.

Richard Scott
Sheffield
Essex

the W/R labelled box, the other half is that box must be red.

Therefore W/W must be the box labelled R/R since it cannot be in the box labelled then W/W, leaving W/R in the box labelled W/W. The solution can be worked out the same way if a white ball is picked from the W/R box.

Thank you for pointing this out; the solution was pointed was less than clear. However, Alan Northcott, the winner, knew exactly what he was doing with the boxes, so no injustice was done.

Kenn Garroch - wanted!

Looking through past copies of *Popular Computing Weekly*, I start to wonder - who is this Kenn Garroch? From the photograph he looks like a 'wanted person' from *Colchester*.

D G J Hackett
Chertsey



Any helpful QL readers?

I am having difficulty in understanding the various commands pertaining to the QL (which my son has very graciously bought for me), despite constant assistance to the very excellent instruction manual, and would like a reader to allow me to write to him (or her) and put a few questions regarding its use, enclosing, of course, a stamped and addressed envelope. A

Popular Chess - now post-free

Make your move

With the *Popular Chess* tournament getting into its stride, and as many people entering regularly, Inter-Medians, our organiser, has generously offered to help you save on all the postage spent sending off the entries every fortnight.

From now on, *Popular Chess* entrants may send their suggested moves to the company's Freepost address. No stamps needed.

The one catch to this is that Freepost is sometimes not as fast as first class mail, so if you are sending in your entry with little time to spare, it may be better to use a stamp and the original address. Both addresses are printed below.

This week's moves

On with the game. In Game one, the Readers' team, playing Black, has blocked Colossus's check by moving a pawn out (see diagram). Colossus's reply was to remove said pawn.

In Game two, the Readers are playing White, and opted to put Colossus in check with the knight. In response, Colossus has removed the knight.

Prizes

This isn't all for nothing, you know. There's a shiny Mopac reproduction Amiga chess set up for grabs for the person who suggests the greatest number of scored moves in each game; and five winners go prize of Colossus Chess if for the most consistent entrants.



Game one

1. Pxd4 Pxd4
2. Ng1-d2 Nd4-d5
3. Bb1-a2 Qd4-d5
4. Pxd4 Pxd4
5. Pxd4 Nd4-d5
6. Bb1-a2 Pxd4
7. Pxd4 1



Game two

1. Pxd4 Pxd4
2. Ng1-d2 Nd4-d5
3. Bb1-a2 Qd4-d5
4. Pxd4 Pxd4
5. Pxd4 Nd4-d5
6. Bb1-a2 Pxd4
7. Pxd4 1

reader's help would be greatly appreciated.

Edward Ogilvie
3 Dream Drive, Kersland
Stroud
Dean G3 7H 1GB

Printing advice needed

In one of your recent issues of *Popular Computing Weekly*, you described, as I recall, a method of printing at

near letter quality on a Commodore 64 and various printers.

I wonder if anyone could kindly suggest a routine for this in *Basic* on the Plus 2/5. I would also be grateful if anyone could inform me of a routine which allows the above to be used as a type-writer, direct from the keyboard.

S B Cairns
Preston

A trip down memory lane

The BBC Master Compact is the latest of Acorn's machines to use the BBC technology. Duncan Evans supplies the details

The BBC Master Compact is Acorn's bottom of the range computer, designed to compete in the Amstrad market with its built in disc drive and colour monitor.

The Compact is, of course, a repackaged Master 128 but without all the frills. Initially the system, comprising of a keyboard, plinth housing the power supply, disc drive and monitor looks very stylish, but then again the BBC always was attractively designed, until all the connecting wires have to be fitted and then things take on a more sloppy appearance. Power, disc and monitor cables all have to be connected to the plinth. The colour monitor, as well as looking good with its cream and beige housing, gives a very clear and steady display.

The interfaces were one of the BBC's strong points but in order to cut costs the on-Acorn like mouse is over there was one) some of the best loved ones have gone. The User port, analogue port, cassette, 1MHz bus, TV modulator (available as an extra costing approximately £20) and Shugart-style disc interface have all gone to be replaced by disc interface (for 3.5 inch drives), one Atari joystick port, Rosetta port.



The BBC Master Compact

RS 232, composite video and RGB. Also, the printer port has been changed so you'll have to buy a new one if you're upgrading from the standard BBC.

The keyboard has a somewhat cheapish feel to it and is arranged in two sections, the main one containing the usual ten red function keys, the other being a numeric keypad. The keyboard unit is fairly light, an indication of how many of the frills have been removed or transferred to the plinth.

If you leave the disc supplied in the drive on powering up the machine it becomes apparent that Acorn have made a half hearted attempt to get away from the programmer type user, to the sort of person who doesn't care what's going on underneath the bonnet, with the provision of desk-top-like front end. Just how half hearted this effort is can be gauged by the fact that it's not in Basic, it's written in Basic, there's no mouse provided and compared to the Master-look or Gem on the ST it's something of a joke. Unfortunately the only way to get to the View wordprocessor (provided in Basic) is via the front end software. It is, in fact quicker to type commands in to access the disc than to use the stagger down menus.

Speeches View, the other software supplied includes a couple of games, BBC's in-house word processor, Em-paint, Logo and a number of utilities. Em-paint is rather a graphics package which provides some useful facilities, namely fills, cut and paste and colour shading. The trouble is that it is also written in Basic and is capable of drawing only very crude designs. The sort of designs in fact that drive you to go and buy a real piece of graphics software.

Dispensing with the superfluous and getting down to the nitty-gritty, the two weak points of the original BBC were lack of memory and lack of colour. Taking the memory problem first, the

had now, to a reasonable extent, been cured. The Compact comes with 128K memory, the organisation of which is quite flexible. On power up the operating system (MODS) claims the memory up to



AM00 as usual. Basic then fits up to 48000, an area normally consumed by the screen memory. The screen memory is shifted to an area of Ram 208, long called shadow memory. From 48000 to 80000 is where Basic resides but is also the area where the software Ram/Rom can be switched in and out of.

Four pages of Ram 654K in total and three pages of Rom are fitted in the Compact although the theoretical limit is 16 lots of 16K Ram/Rom (if you have an expansion board of course). The MOS Ram turns on normal from 40000 to 654K.

What this all means is that the Basic programmer has 26180 bytes of memory to play with initially. Now, recognising that this simply isn't good enough, Acorn have provided on the disc a version of BBC Basic which loads into the normal Ram and allocates 128 to the MOS, treating the banked Ram as that, for all intents and purposes, a continuous 64K of memory is available for programming.

On the colours front the changes have been in providing various shades for mixing those available. While this does not really give the illusion of new colours it at least breaks up plain displays into something more attractive. Even so,

you'll never get anything that has the metallic grey look of a GEM.

Changes to BBC Basic have been limited to very few, the most notable of which being the expansion of the Plot command. Originally this provided under a hundred variations, now it covers 207 which includes the provision of circles, ellipses, fills and solid shapes.

And so, to software compatibility and the main disappointment with the Master Compact. Many of the machine's prospective buyers will be BBC upgraders but unfortunately there's no cassette interface so it's goodbye to your collec-

tion of cassette-based software. On the disc front things are severely better. Using a 3 1/2 inch disc drive may provide mass storage and be more up to date than 5 1/4 inch disc but it surely represents a shot in the foot by Acorn. Bang goes your disc collection unless you keep the drive and buy a special cable and install a

probably too late for that now. As an upgrade machine from the BBC B then the Compact would have been the natural choice but for the lack of cassettes and inclusion of 3 1/2 inch drive. Acorn has committed a folly which will negate what is a good machine to specialist markets. The Compact is a more attractively priced BBC than ever before with the range starting at £440 (no monitor, no TV modulator), £637 with monochrome monitor and £667 with colour monitor, but is still too expensive for what you really get. It's a better machine than the Amstrad CPCs but then again it costs a good deal more. At these prices Acorn is pushing the Compact at Atari 520 ST and Amstrad 1612 levels but compared to the ST it comes off a poor second best. At around £400 with a 5 1/4 inch disc drive, cassette interface and colour monitor then the Master Compact would represent a very good buy. However, it's

probably too late for that now. As an upgrade machine from the BBC B then the Compact would have been the natural choice but for the lack of cassettes and inclusion of 3 1/2 inch drive. Acorn has committed a folly which will negate what is a good machine to specialist markets.



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Classy black and white art

Clares Micro Supplies' Artroom package is now available for the Acorn Master Compact, which is reviewed on page 16 of this issue, and is the first of its packages to be written specifically for that machine.

The first point to make is that Artroom operates in black and white only. This is because, says Clares, it is intended to be dumped to paper only. However, in the light of potential competition

(Wargrave House's The Artist for the BBC, for instance) this could be seen as a drawback.

The program can be controlled via the keyboard or a mouse. Needless to say, keyboard operation is slower, but since there is no mouse supplied with the Acorn Compact, you need to buy one as an extra if you wish to use it.

All drawing operations are accessed through an icon screen, separate from the 'canvas'. What exactly each

icon performs needs to be learnt as some of the symbols are obscure; others are quite obvious.

Because the program gives you black and white only, the resolution is very high, and drawings of astonishing detail can be created. The zoom option (which makes every pixel about the size of a brick) helps you refine it even more, while the variety of fill patterns gives you good contrast between shades of grey.

All the usual facilities are there: the rubber banding, air-brushing, different pen thicknesses, circles, different fonts for text on screen, reversing pictures, etc. Don't, whatever you do, try to overfill an already filled area; on my copy this had disastrous results — it crashed.

At £27 Artroom costs probably what you expect for sim-



ilar BBC software, and given time and a bit of talent, it has all the facilities to help you create some beautifully detailed drawing.

Christina Eshkine

Program: Artroom: Micro Acorn Master 128, Master Compact **Price:** £27, £25 respectively, disc only **Supplier:** Clares Micro Supplies, 88 Middlewich Road, Northwich, Cheshire CW10 4AX.



Get writing – get Popular

Popular Computing Weekly always welcomes contributions from its readers for articles, features, and program listings.

Whether you want to write articles, see your programming masterpieces in print, pass on some words of wisdom, or simply let off steam, there's space in the magazine for you.

Below are **feature articles**, or completed essays, should be sent to Christina Eshkine. All aspects of home computing are considered, but we cannot feasibly accept anything longer than 2,000 words, so brief is best. If it's worth checking by phone or letter first that your article will be suitable. Payment is normally £25 per published page.

Technical editor Duncan Irvine looks after the **program listings**, and articles on programming. We rely on you for our Programming section, so earn yourself a place in the Regular Hall of Fame (and £25 for each page we print by having your program published. Even if it's not 100% of R of pure machine code, but a short snippet routine, there may well be a place for it in **Bytes and Pieces** (370+ slots).

Articles on any aspect of programming are also welcome — with short listings included if relevant.

Get something you feel needs saying loud and clear? Your opinions on any aspect of the computer industry are welcomed, so why not write in to the **Zigzaggy section?** No more than 500 words, please. If published, we'll pay you £15.

So maybe it's not the money you're after, but you'd just like to have some say in the magazine.

For shorter comments, general observations or queries, there is of course the **Letters page**, with the tempting offer of a year's supply of Regular binders for the Star Letter each week.

For more specific points, our team of columnists are always willing to answer questions, and keen to hear the latest information. Drop your letters to **Tony Bridge** (adventure hints always gratefully received); **Tony Kandle** (software, as many Arcade games, maps, solutions, etc., as possible); **David Wallis** (computerisation); **Ross Garsch** (programming problems); **Mark Jenkins** (traps, games and sample tapes) and **Martin Bryant** (computer chess comments).

All letters should be addressed to Popular Computing Weekly, 12-13 Little Newport Street, London WC2N 6PP. If you mark your letters with the department you want, things get processed much more quickly.



Left: the adventures Tony Bridge. Right: the editor Tony Kandle.



A masterful music collection

The *Musicsoft Collection* is just that – a varied selection of music software covering education, performance and programming. None of the individual routines measure up to specialist packages such as *Island Logic's Advanced Music System* which centres on compositional techniques, but collectively this suite of programs has a lot to offer.

The main menu offers six loading options: *Intervals*, *Keyboards*, *Musicsoft 1* or *2*, *Pelman* and *The Synth* which we'll look at in order. *Intervals* is at once the most sophisticated and the most useful of the suite – it's an educational routine designed for a large class, and records scores from a musical interval identification test.

Pairs of notes are sounded, together or separately, and the user has to enter his guess as to the interval between them in semitones. A table of scores (in hex for display simplicity) is set up and can be stored as a single file, and the tests become progressively more complex, introducing more and more intervals and variations in speed.

Intervals is a pretty effective educational tool, but most of us will be interested in more creative applications. *Keyboards* offers this, turning the BBC's panel into a three-note (polyphonic) organ, or a monophonic synth with envelope select options and an amazing pitch bend operated from the \pm keys, or a single-finger chord organ arranged across the whole keyboard or a small part of it. You can test and edit mono sounds, and editing these can create some pretty wild synthesiser effects. *Keyboards* isn't very educational since it doesn't show which notes are being sounded or anything useful like that; *Pelman* is even less educational, being a set of seven variations on the Simon game with various levels of difficulty. It teaches, more about eye-to-hand coordination than about music, despite the fact that it's based on pitches and coloured squares.

The two *Musicsoft* programs deal with simple performance and note recognition. Part one plays a series of five notes, flashing them up on a screen and a keyboard display, each series being based on a chord sequence. It's a sort of auto melody composer, while the second part is a simple recorder which plays back your keyboard performance and allows you to transpose it, speed it up, delete, or re-program the playing of the notes by tapping a single key. The second *Musicsoft* version includes *Twisted*, a Basic routine for entering three-part harmony tunes which you can list and re-program yourself; you certainly won't want to hear the clever demo of *God Save Ye Mary*. *Twisted* has too many twists. There's also *Chord*, which draws staff, key and bar length symbols in any size on the screen, and *Twisted*, which is similar to the

envelope editing function of the 3-note organ section.

On to the last section, *The Synth*, which in fact could more happily have been called *The Sequencer*. It allows you to record three channels plus a noise channel, play back patterns up to 1,600 notes long, time correct performances with a single key, Tidy patterns so that each voice has notes falling on the same beat, and so on. One voice is recorded at a time so you can carefully build up quite complex pieces, and you can repeat large sections of your composition as desired and store the result to disc.

The on-screen instructions on the whole system are very easy to follow and quite logical (almost foolproof), but the presentation isn't very exciting on most of the screens. Simple tables of values won't hold the attention for too long if the purpose is educational,

and won't provide too much inspiration if the purpose is creative. Graphic sound editors such as that on the *Advanced Music System* are more interesting, but then, the *Musicsoft* package is much more intensive in its educational modes than *AMS* will ever be.

The *Musicsoft* handbook is simple but clear and overall the package provides reasonable value for money. But it does have a lot of competition in some areas, and while educators may find it uniquely useful, budding synthists may feel that it is a little basic.

Mark Jenkins

Programs: The *Musicsoft Collection* *Music BBC 2* and *Master 128 Price* £19.95 **Supplier:** Duckworth, The Old Piano Factory, 43 Gloucester Crescent, London NW1 7DT. 01-485 5654.

Living in a model universe

Whatever your level of interest in computers, chances are that graphics will grab your attention. And if you mention computer graphics to most people, what springs to mind are those dippy, wire-frame pictures beloved of science-fiction and spy movies.

Now Amstrad owners can create some impressive displays of their own with *Model Universe* from Amstrad.

The package, supplied on tape or disc for Amstrad 484s and 5120s, allows you to create 3D images and then shrink, enlarge, rotate, and generally push them around on screen.

As a bonus, and a bit of added value, you get a free game on the floppy called *Satansticker*, a test of mental agility involving letters, colors and moving goblins.

But back to the universe. There are a host of features, including the ability to set up your image precisely and

mathematically by entering a series of co-ordinates, or the ability to move it around in real-time under joystick, mouse or keyboard control.

Designs can be saved to tape or disc, or output to a printer. You can also incorporate systems into your own programs, or load them into other graphics packages for further manipulation and enhancement.

My main gripe about *Model Universe* has to do with the drawing mode. This is very primitive by the standards set by current graphics programs.

For example, there are no on-screen menus, no icon-driven commands, and very little interaction. This means that when you draw a line, you set the start point, then move the cursor to an end point, press a key, and the



line is drawn. If you don't like it, you delete and try again.

Beyond this, *Model Universe* works as advertised. The trouble is, what are you going to do with it? Amstrad describes it as "an introduction" to three-dimensional modelling. And it ends there.

It isn't really powerful enough for professional use, and how much long-term interest it will provide is open to question.

Still, if this is the sort of thing you like, you'll enjoy *Model Universe*.

Peter Wardlaw

Programs: *Model Universe* *Amstrad Amstrad CPCs Price* £19.95 tape, £19.95 disc **Supplier:** Amstrad Ltd, 118 White Horse Road, Gorton CR2 2LP.



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Pandora has come up trumps with *ST Karate*, probably the first martial arts game on the ST.

The object of the game is to achieve physical enlightenment, and to beat the hell out of anyone who gets in your way. There are a total of 18 different moves: from head punches to flying kicks, all

controlled by combination of joystick direction and the fire button.

The colourful and well-drawn, would-be Bruce Lee figures leap around and perform the various moves in a smooth manner, resulting in the action being fast and furious. Then there's the tactical element as one fighter's ener-

Karate's cutting edge

gy level draws closer to pitch and he must avoid confrontation while waiting for a basket to drop from the heavens. Striking one of these bouncing baskets mysteriously results in your energy level being increased. The last thing that can drop from the sky though is a little oriental mask, linking that game you are into life.

The backdrops to all the violence include Buddha, pavilions, look edge with a junk, jetty, interior and bedroom scenes. The first two probably shade the others but all are of a high quality graphically.

The one player game has

more variety, featuring two opponents at a time and intermittent scores of hitting, bouncing or swatting columns of baskets but it's most enjoyable when pitting your wits and skills against a human opponent.

It may not be particularly original but *ST Karate* is definitely one to consider when you feel like kicking someone in the head.

Popular Appeal ★★★★★
Duncan Stewart

Program *ST Karate Micro*
Atari ST Price £24.95
Supplier Paradise Software Ltd, 48 Howden Avenue, London N22 4UP.

Weaving that (not so) magical spell

It almost goes without saying that creative types do better work on their own projects than when they're working to someone else's specification.

A prime example is the Level 9 team, capable of producing some of the best adventures but who have turned out such poor stuff as *Adrian Mole* and *The Archers*.

Now, in similar vein, comes *The Colour of Magic* under the new Paradise label but generated by Delta 4 - creators of the splendid *Beggar and Night of Sherlock*.

The *Colour of Magic* is based on Terry Pratchett's book of the same name, and concerns the trials and tribulations of Rincewind the fourth-rate magician.

Rincewind lives on the Discworld and gains employment as translator to Two-Flower, the first tourist in this other-dimensional backwater.

Colour of Magic concerns the trials and tribulations of these two unlikely companions.

The most noticeable thing about the Discworld is that it doesn't conform to normal directions. Instead you must use the terms Hubward, Rin-

ward, Turnwise, and Widdershins. Although this is in keeping with the mood of the game, I found it intensely annoying.

The same goes for the game's vocabulary. Obviously you can't expect everyone to be up to the standard of Infocom, or Level 9, but this is much too limited.

There are a few graphics

but they fully support the text-only lobby; they add nothing to the game, are irritatingly slow to be drawn, and consume memory that would have been far better employed in expanding the game's vocabulary.

All in all then, not Delta 4's finest hour, and an inauspicious debut for Paradise in the adventure field.

Spent your money on something better, there's a lot of choice at the moment.

Popular Appeal ★★
Peter Worlock

Program *The Colour of Magic Micro Commodore*
£47.125 Price £5.95
Supplier Paradise, 4 Little Essex Street, London WC2N 3LP.

Gee-whizz technopop

BBC owners - at least as far as game-playing goes - are almost a forgotten breed these days. So it's nice to report the arrival of a real cracker.

Space 3, as you will guess from the title (even if you're not familiar with *Repton* and *Repton 2*), is not totally original but the third is a successful series.

The sound effects are not outstanding, the graphics are a touch higher than the standard set for the W1-20, and the animation leaves rather a lot to be desired.

So now we're clear on what it's not, let's establish what it is.

It's brilliant, and it's fee-

dably addictive.

There are 34 screens to the game, each of them a series of logical puzzles. A typical one might have a very narrow entrance. To get a diamond, you dislodge a boulder which blocks the entrance so you can't get out. So first you move the boulder, get the diamond, then discover that moving the boulder prevents you from getting that other diamond. You get the picture.

By way of further appreciation, you're up against the clock - but buried away on some of the screens are bonuses which give you extra time.

On the earlier levels you can call up a map screen, and

once you've finished the game (somewhere around Easter, 1989) you can use a screen designer to torture yourself even further.

It's available on cassette or disc, there's a version for the Electron, and a 3 1/2 inch disc format for the new Master Computer.

Just goes to show: there's more to computer games than gee-whizz graphics and a technopop soundtrack.

Popular Appeal ★★★★★
Peter Worlock

Program *Space 3 Micro*
BBC Micro Price £5.95
cassette, £11.95 disc,
£14.95 3 1/2 inch
Supplier Superior Software, Fergit House, Skinner Lane, Leeds LS7 1AX.

Time warp to Chicago circa 1920

Don't be worried about games with gangster themes that bring out the worst in people.

They seem to feel obliged to put on phoney, 1920's American-Italian accents which, while amusing in small doses, becomes dull after a while.

A number of second-rate games have been produced along these lines. The latest attempt is *Bugsy*, written by St Brides and distributed by CRL.

So all praise to St Brides who went the whole hog and did one and called it off *Bugsy*. It is amusing in large doses.

It's all down to the off-beat humour, starting with *Bug-*

sy's handicap in making his bid to topple Al Capone as Public Enemy No 1.

Bugsy is a cute, blue-furred rabbit. And when you're the only cute, blue-furred rabbit in town, a life of crime is a bit difficult. You need to get狡猾.

But once you've got your mind around this bizarre beginning, everything else follows with incredible logic.

For example, how does such an eye-catching rabbit pull off a robbery? Easy - he wears a mask.

Bugsy is an illustrated adventure *Quik!* And it must be said, *Quik!* superbly in which you must take this position, but cute, rabbit from apprentice shoplifter to re-



He is a real rough part of town. But his hands are so tough that when they can't find work they whistle their fingers.

See of the social getting steps up. So it was that he and built like a brick outdoors.

"I don't like rabbits where I live," he said.

None...

more use in the Chicago underworld.

Of course, it's a game of questionable morality. Along the road to success *Bugsy* will have to indulge in any number of crimes including - but not limited to - mugging, party theft, armed robbery and murder. Twisted fun, though.

Some of the puzzles are tough. In the first instance be aggressive, in the right circumstances this cuddly bun-

ny can turn into a lean, mean, fighting machine. Later you'll have to be subtle, ruthless, cunning, corrupt. But cute, always cute.

Bugsy is an 18-carrot success. Top of the world, Ma. **Popular Appeal** ★★★★★

Peter Worlock

Program *Bugsy* **Micro**
Commission £4 **Price**
£7.95 **Supplier** CRL, 8
Kings Yard, Capetown's
Road, London E15.

Taking chess to a higher dimension

After being refined and released for a string of different computers, *Poison's Chess* program has been incarnated on the Atari ST in what is probably its finest form.

On loading a three-dimensional view of the board is displayed in four colours on the ST's medium resolution screen (640 x 380 pixels). The pieces are clearly drawn and undoubtedly represent the best graphics of any ver-

sion yet produced, but initially it is easy to overlook something vital when you have four or more of them in a vertical line. After a few games though, familiarity with the designs prevents such mistakes occurring again.

At the top of the screen, discreetly hidden until the cursor is moved there, are the various drop-down menus which give access to all the options and facilities provided by the program.

If you need instructions then there's the *Help* option; the display can be switched from 3D to 2D and back again with just the click of the mouse. *Hint* and *Analysis* options are there to help you and if you've made a catastrophic mistake then there's always the *Takeback* facility, or if things have gone downhill too far you can swap sides and play with your opponent's pieces.

Speaking of opponents you can play against the computer, against a friend or set it up so that the ST plays itself.

Naturally all the legal moves in chess, including *En Passant*, are allowed, while illegal moves cannot be made.

All these tricks would be of superficial value if the program played poorly. Thankfully it doesn't. With 28 levels of play ranging from *Novice* to 'extremely patient', waiting for the computer to move you should find your match somewhere along the line (unless your name's Kasparov, of course). Even at the default

setting of six seconds *Poison Chess* plays a pretty mean game which just goes to show the power and speed of the ST have been put to good use.

Finally, one of the most interesting features of all is the provision of 50 classic chess games on the disc, covering the last 150 years (and including a couple of Kasparov's Kasparov matches), for you to examine and even play from any particular point. An overview of these matches is given in the manual by International Master William Hartston.

If you have an ST and you want to play chess then don't consider *Poison Chess*. Buy it.

Popular Appeal ★★★★★ **Discard** Evans

Program *Chess* **Micro**
Atari ST **Price** £14.95
Supplier *Poison*, *Poison*
House, Harcourt Street,
London W1H 1DT.



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Stirring tales

Down these mean streets a half-cro must walk.

The streets belong to Skara Brae, one of the toughest towns ever to grace a fantasy universe. Here fame and fortune can be yours, because Skara Brae is a town gripped by terror and the streets are paved with corpses.

This is the setting for *The Bard's Tale*, the hot new role-playing game by Electronic Arts out of the Anaheim stable.

The bard is one of the great original inventions in RPGs. A skilled warrior, he has turned to the magic of music and the songs he plays can protect

your band of adventurers, soothe your savage enemies, or even bring light to dark places.

The plot is familiar stuff. Skara Brae is in the grip of the evil mage Manger, the town's soldiers are gone, and bands of wrong-doers are roaming the streets.

Your mission is to persuade Manger of the error of his ways; ie, kill him. But before you can do that, you'll have to build up a force capable of doing the bidding.

What makes *The Bard's Tale* so outstanding is the presentation.

The screen display is split into three windows. The largest contains the vital statistics of your band, which comprises six adventurers, plus a slot for a seventh. The latter can be a monster who may join your party, or a magical creature summoned by one of your powerful sorcerers.

The second window is a full-colour, graphical view of



your surroundings – the streets, the interiors of buildings, inns, temples, and (watch) the dungeons. You'll also get pictures of your characters here, and enemy monsters – many of them animated.

The third window contains a scrolling textual description of scenes and events. In contrast, you get a blow-by-blow commentary here.

So, if you're stomped on every monster in sight, tramped over every square

inch of the *Ultima* series, get a copy of *The Bard's Tale*.

PS: "a half-cro" and "half an orc" are not at all the same thing. The latter is not much use to anybody unless it's got gold in its pockets.

Popular Appeal ♦♦♦♦♦
Peter Worlock

Program *The Bard's Tale*
Media Commodore 64,
128 **Price** £14.95 **Supplier** Aristocrat, Long
Acres, London WC2.



Stand tall – stand guard

Originality is a word often bandied but little adhered to in the wacky world of entertainment software in the Year of our Lord 1988.

Consequently, when something original turns up, it tends to knock your socks off. What we are talking about here is *Sentinel*, the latest Firebird release on BBC and Commodore 64 – with

others to follow, maybe.

You start off in *Landscape Zero*, finding yourself stationed within a *Medie Madmax* type landscape, with the ability to look left/right and spy/don't.

Looking round you will see an eerie vista of sacrements and trees, with a figure placed on top of a pinnacle. That figure is your enemy – the sentinel.

The sentinel scans the landscape very much like a lighthouse, only its gaze is deadly in that it drains energy from your robot (that's you, incidentally). You start off with ten units of energy, as indicated on the upper left hand portion of the display.

It's a question of kill or be killed, which is where this clever bit comes in. Using your reserves of energy, you can create things. These costing one unit of energy to block the gaze of the sentinelist, boulders, costing two, to increase your height and new robots, at a cost of three. Why should you want to increase your height? Because being at a higher level than another object on the landscape, allows you to absorb its energy. And that includes sentinelist (all this creating and absorbing is done by using an on-screen cursor).

You move around by creating another robot, then transferring your "being" into it. You can now absorb the energy from your old body and get on with the business of surviving.

If this sounds difficult, with one sentinel, well, as you go

along, you tend to get more, say, six, all placed some where different (assuming a different part of the landscape). This is genuinely hair-raising, in that you'll find yourself moving around frantically in an attempt to get out of a vein. Hyperspaceing like mad (unfortunately this costs another three units) and generally getting your hair messed up. And here's the punch line. How many levels to *Sentinel*? 1600? 1800? 5000 even! No, 10,000 separate landscapes – and you start at zero.

Each landscape has a unique "secret" entry code – and in case you're thinking of trying to hack into the thing, Mr Crommond has doubly encrypted these codes, and in his own words, unravelling the system would take "incredibly long time".

Popular Appeal ♦♦♦♦♦
John Cook

Program *Sentinel Landscape* **Price** £9.95 on tape, £14.95 on disc **Supplier** Firebird, 74 New Oxford Street, London WC1.

The cream of the Christmas crop

Tony Kandle this week brings you a variety of tips – including games to help fill Santa's sack



As promised last week, the following map is for the new game *Star Wars: The Force*. Make sure that you keep your copy close to hand as we will be offering some tips for the game in the near future.

Here are some tips from Steven Kaiman for *Medien's Dexterity Run*.

"Get the honey from their bag and the box key on floor three. Take them to the jack in the box and jump on it. Swap the honey for the teddy bear. Get rope from the cat and go to space invaders to get through the door. Jump at rope in new room. Get the pop gun and cork to get past the soldiers.

"Fetch flag from the roof and the duck from the swimming pool on floor one. Take duck and flag to the beach to get the pebbles. Get the catapult from the cat and it will become loaded. Get the broken rock and bulb which will now become a working torch.

"Take the loaded catapult and the torch to the dark room and shoot the ducks to get eggs. To get past the hand get the glass from the breakfast room.

"Can anyone help with what is de with the red whale, camera, 'A' book, Peter's book, radio, 10 pieces, eggs, bomb and coat of arms? Also does anyone know where the hammer is in the Commodore version of *Paganissimo* and how to save a game in the C64 version of *Starblitz*?"

After having made a successful entry into the software market with its budget range, showing that quality and low prices need not be mutually exclusive, Firebird went into the doldrums for the middle of this year. It was living on conversions of old hits such as *Elite* and new misses such as *The Cover Game*.

When I saw that the Silver range had been 're-launched' with such exciting, and apparently immortal, titles as *Alien*, *Chopper* and *The Warunch* still to the fore, things looked bleaker still. I'm now happy to admit I was wrong – the Silver budget games are so much fun, and such excellent value, that they have put the Silver range back into the top quality class.

The games to look for are without a doubt the extremely popular C64 *Man-A-Ret* and the loose anacle conversions *Space Firebirds* (Amstrad) and *Thrust* (a wide range of machines). The latter is a vector graphic game of exciting skill

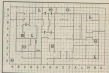
and much frustration which has been very well done. *Starblitz* is a very smooth 3D simulation game, which, while traditional in its play and not particularly innovative, is as good as anything Ultimate has done and well worth the price.

The title that really bowled me over was *Harvey Rumbarger (Amstrad)* – a very very simple game to play but very well programmed indeed, addictive and barrels of fun. It's a safe Christmas present for anyone, including yourself.

Other brilliant games that are around at the moment include two that have, despite all the odds, come up with new and very enjoyable variations on the 3D simulation theme. *Quicksilver's Elder Alder* has been out a while on the Spectrum but the new CPC version is one of the few that really make the most of the machine – high resolution, good use of colour, continuous sound and the same very clever game behind it all. The key first step in this game is to drive into the

pylons as you can temporarily disable the laser turrets – any more tips than that will be welcome.

Ocean's best since *Reisen* is undoubtedly *Great Escape* – a fascinating game which portrays life inside a German POW camp where you have to sift a myriad clues and red herrings to find the way out. Loads of rooms, loads of interpenetrating action from the other prisoners and an absorbing scenario. It's even entertaining to sit back and see the daily life of the camp carry on without worrying about escaping.



Charts

Top Twenty

- 1 (11) *Infiltrator*
- 2 (21) *1942*
- 3 (14) *Trivial Pursuit*
- 4 (13) *Pit II*
- 5 (16) *Paperboy*
- 6 (17) *Computer Wars Vol 3*
- 7 (15) *Ghosts and Goblins*
- 8 (12) *Lightforce*
- 9 (15) *Ninja Master*
- 10 (14) *The Great Escape*
- 11 (10) *Thrust*
- 12 (1) *Tap Danc*
- 13 (12) *Dragon's Lair*
- 14 (16) *180*
- 15 (11) *Pit Games*
- 16 (14) *Warhawk*
- 17 (11) *Unclim*
- 18 (11) *Cruid*
- 19 (11) *Kano*
- 20 (11) *Green Beret*

All figures compiled by Gallup/Microscope

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Firebird
Harmon
Firebird
Mastertronic
Imagine



Intercepting the commands

*This week, Tony Bridge serves you hours of frustration with **Interceptor** tips, plus other news from the adventurous world*

There are rumors making the rounds of a Super-Quill in gestation. Known as The Quillkiller, it will, I'm told, combine the graphics and text capabilities in one package and include lots of other new features. However, there is nothing concrete yet, and I'm sure that I'll be able to bring you more details as they become available.

To get away from Quill adventures, however, and to visit once more the hallowed realms of the original mainframe fanny into the nether worlds, let's have a look at a game called (with refreshing and stunning originality!) *Adventure* from (more originality, and why has nobody thought of a before?) Adventure Software. What these people lack in thinking up titles (it is, admittedly, a provisional title), they more than make up for in the scenario of their adventure. It's very heartening to a reviewer in these days of the ubiquitous Quill (though I'm sure you'll all agree that it is a great utility) to come across a non-Quill game, and a more favourable outlook is naturally taken.

The author, Nigel Brooks, tells me that he originally chose the well-known scenario in order to test his adventure-writing system, but felt that his implementation of the well-known theme was good enough to launch as a fully fledged game. I must say that the game is very well presented — text-only (with very atmospheric descriptions throughout); it remains, curiously, many features of a Quill adventure (such as the 'K' command and so on), but there is much more besides.

Although the puzzles remain largely the same, Nigel has taken a leaf out of Level 9's book and added more locations, this time to the beginning: the effect this has is to make the whole of the subterranean world more believable. The player doesn't just happen to stumble across the lamp, keys and other possessions lying around the hut, but has to work hard to obtain them. Objects can be carried in the pocket, or taken out for

use — again, more believable. As much thought has gone into the rest of the story — apart from its attractive-looking and well-thought-out set, all sorts of silly inputs seem to be catered for, including most of the usual swear words (at

room and the but and so on) are handled in a rather different way than usual, and all the better for it — the snake, for example, eats the bird and then simply wanders off, replaced. I have to say that it's a more elegant solution.

I hope we can see more stories written with this system; although the parser for *Interceptor*, as Adventure Software insists on saying, which is the only laptop I have noticed in the spelling, another big plus point) is not the equal of other more complex examples, it is perfectly adequate. *Get and Drop All* are also possible, as are *Ham Save* and *Lead*, though these are only possible while carrying a certain object.

I don't know how much Adventure Software wants for *Interceptor*, but write to them at 21 Dashing rise, Brighton, Sussex BN1 4BB and give them a nudge.

It seems like years since *Interceptor* released their last adventure, but in fact *Warlord* is only some months old. Like the other programs, the new *Afternoon* is written for the Spectrum and all the demands (including the PCW) by David Barker and illustrated by Tony Geese and the pictures are for the most interesting part of the story.

As usual they are brilliant, but they have the added dimension, in the present case, of animation. Thus, a hand waves weakly from beneath a pile of rubble where its owner has (almost) buried, a plume of smoke rises from the ruins...

But I'm getting ahead of the story, which concerns Armageddon — or rather, the imminent threat of nuclear disaster. A large earthquake has led to waste the city in which the adventure takes place; caused by the local nuclear testing range, the reactor is now in danger of a Chernobyl-like meltdown. You may think that you are sitting at home idly tapping at the keyboard of your computer, but you are actually the designer of the reactor, and the only person in the world who can prevent a major catastrophe, so why on you just sitting there, idly?



All pictures from *Interceptor* by David Barker

course, the *BT* only has this on (hearsay) and the persistent use of naughty words goes well and truly put in place! Asking for help is a little strange — you must first say 'the magic word', which will then suffice on its own.

As I said, the puzzles remain largely the same, though the well-known bird and rapid travel (from and to the 'B

The story starts in your remarkably tidy office (no animation in this first picture, from which you must somehow escape to effect repairs to the reactor. There are just half-a-dozen locations at the start, and as far as I know, only one way out. This is where the basic flaw of David Banner's adventure system first shows itself, the way out, though a panel in the setting of the lift, is pretty obvious even to me, and the method of making the escape is also obvious. A nice movable chair is sitting there in the first room, so take it to the lift and - well, not quite hey presto! First of all, you can't get anything; instead you must take.

Okay, maybe David Banner is one of those writers who refuses to even look at other stories for fear of contamination, and that is fair enough - but look at the method for actually escaping from the lift, and the commands required.

First of all, having dropped the chair, you reveal the Climbed Over Chair. This

can't stand on chair, or lie on, or Go Chair, or Use Chair or any other Thesaurus-inspired alternatives. Next, you must Banister-Climb for the panel to be revealed, then Answer Panel.

Of course you must get out of the lift through the panel, but the only command recognised by the program is Climbed Out Of Lift. Again, you may say "Well, isn't that obvious?" and it is; but I believe that we have all travelled a fair distance down the path since adventures first arrived and would expect some credible alternatives to be accepted.

After this first round of frustration, the story opens out quite a bit, with lots of locations and objects with which to be puzzled - but you'll still need to keep in mind the strange workings of the Ban-ni-mal. Almost all the puzzles are conducted in the same convoluted fashion as the lift problem - later on, you must use a sluiceway mechanism. But you can't use the words that any normal person would use, especially in a tight situation; you must Lubricate Mechanisms. Is there absolutely no room for a couple of similes?

I imagine that the main problem facing the author here was the sheer amount of memory required for the graphics, and Interceptor seems justifiably proud of these, at the recent Amstrad show, a rolling demo of the pictures was being displayed on their stand, but unfortunately, none of the text. I think that is of



some importance too! I'd actually prefer an adventure to be split into boring parts if it means that we can have both pretty pictures and a reasonably gripping puzzle.

Atmosphere comes largely from the scenery although the descriptions are much more evocative than the old "You are in a..." of yore, and these are supported by these wonderful pictures. These are very skillfully drawn (you won't see better draughtsmanship outside a CAD test), and beautifully composed with Greer using the best of comic book techniques.

An IC3-E4, Attenbrook might well have proven irresistible, for there is a good story here, well illustrated and quite atmospheric in the race to cool down the reactor, with some interesting puzzles - but with inferior packages available at almost the same price, Interceptor must learn that players deserve more for their money nowadays than "Try another command" even if we are being stupid.

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PERIPHERALS

INSIDE

31

Video pictures on your computer? Easy with video image digitisers

34

A mouse in the house: easy data input

41

Monitoring the situation

45

Search for a star with the latest printers

49

Getting in touch with a modem



Buying peripherals for your computer is, by definition, a harder task than choosing the micro itself, because for every computer on the market there are twenty printers, monitors, modems and other assorted bits of kit.

The aim of this supplement is not to tell you what to go out and buy. It's to give you some idea of the choices involved and the pitfalls to avoid in building your system.

Apart from looking at standard items like printers, monitors and modems, we're also considering some of the more recent "luxury" items: mice, which can contribute so much to user-friendly operating systems; and the latest in video digitisers.

Next week we move on to the little matter of choosing a computer! ◀

Pixel perfect pics

PATRICIA SAVAGE ON THE BLACK BOXES
LINKING YOUR HOME MICRO TO THE
OUTPUT OF YOUR VIDEO SYSTEM

After the home computer, the biggest market for consumer electronics in the last few years has probably been the video recorder. The UK has the biggest percentage of households owning video recorders in Europe, and market penetration is particularly high among home computer owners.

Inevitably, the idea of linking the computer and the video machine has developed into an interesting market. Practically any micro can now be used to capture video signals from a recorder or a video camera, and manipulate them by adding artificial colours or incorporating them into other programs. The applications for illustrating games, desktop publishing, data analysis and other fields are obvious.

The latest video digitiser product is for the Amstrad CPC series. Produced by John Morrison, best known in the Dragon computer market, it's a reasonably priced device with a decent specification.

Like all similar products, the Morrison digitiser works by converting the signal

intensity levels of the video image into a form the computer can understand, and present as a screen image. The final quality, of course, depends very much on the resolution of the computer.



The Morrison digitiser can sample a picture in 1/60th of a second. This means that moving images can be frozen efficiently. The alternative for slower digitisers is to use the pause function on the videotape, which often results in wobble or snow. Because the Morrison digitiser has a high scan rate, it possesses a small continuous "monitor" image of around 1x1". When you have found the image you want to digitise, it takes about

11 seconds to capture the picture and present it as a full-sized image.

Resolution is 64,000 pixels, operating in mode two. The results, which can be stored on tape or disc, can be hard copied to a suitable printer, giving a "mosaic" effect where pixels are either set on or off; there are no gradations of tone.

The digitiser stores the pictures in RAM of coloured memory, and comes complete with software on tape or disc and a video connector lead.

Product: Amstrad Video Digitiser Micro
Amstrad CPC Price: £39.95 **Supplier:** J Morrison, 4 Elm Gardens, Tingey, West Yorks WF9 1JB

There are at least two digitisers available for the Sinclair Spectrum, one from the Dutch company Datacube, the other a home-grown product from Summi.

The Dutch digitiser, VideoFace, produces a 256x192 pixel display at four intensity levels. It can scan a picture every 0.07 seconds, giving a continuous

display, the six latest screens of which can be saved to produce animation effects.

Images can be saved to tape, microdrive, or Beta disc. The software is menu-driven but doesn't offer many facilities for manipulating the microdrive image.

Product: Videoface Micro Spectrum Prime 640 Supplier: DataShip, L. Willemstad 13, 2001 WC Gouda, Holland, or Romantic Robot, 77 Pyne Road, London NW6 7JZ, 01-625 5403

The alternative is the Sunset digitiser, which scans only still pictures, but which has sophisticated manipulation software.

You can alter the contrast, scroll around the image (which is bigger than the Spectrum's screen), save it to tape, microdrive or disc, and load it into various art software packages for further manipulation.

Because the 512x512 bit resolution of the image is actually higher than the Spectrum can display, it's also possible to put the picture onto higher-spec machines to enhance the picture. The software is menu-driven, and the hardware is contained in a Cheetah-style box. The main drawback is the price.

Product: Sunset Digitiser Micro Spectrum Price: £129.50 Supplier: Sunset, 5 New Road, Farnham, Surrey GU10 1DP

We looked at the Haha digitiser for the Atari ST in the Vol 8 No 44, so just a brief summary here. The Haha unit is manufactured by Print Technik, and consists of the main unit, external power supply, connecting lead to the ST's parallel port, manual and software. Despite the advanced graphics handling of the ST, the Haha digitiser seems to have many limitations. It can only handle still



images, taking around ten seconds to complete the scan.

There are four pull-down menus, which allow you to set the size, number of scan lines, zoom, invert, flip and print-out. Lastly, and perhaps most interestingly, any of the ST's 415 colours can be assigned to the 16 shading levels of the image to create spectacular colour pictures.

Images can be saved as screen strings or in NeoChrome/Double format, for later manipulation using the art packages' facilities. Again, the major drawback is the price. At £395, the Haha device doesn't seem to offer any value for money. If the software were designed for more professional applications, it might be a different matter, but for something largely useful only for entertainment, or for creating illustrations for games, the price is unforbearable.

Product: Haha Video Digitiser Micro Atari 520 ST Price: £395.00 Supplier:

Haha Systems Ltd, Pier Road, North Fetham Trading Estate, Fetham, Middlesex TW14 0TT

The Print Technik video digitiser for the Commodore 64 is similar in many ways to the Haha ST version. It creates images at full 64 resolution, then allows you to scroll around the image, and use the Function keys to assign any of the 64's sixteen colours to the four grey-scale levels of the picture. The Print-Technik 64 digitiser comes complete with a package of application programs on disc. These allow you to use the device as a simple security system, able to detect changes in a scanned picture, received from a video camera. Again, for best results the scanned image should be still.

Product: Print-Technik 64 Digitiser Micro C64 64 Prices: £69 Supplier: SuperSoft, 01-801 1158

One of the most sophisticated digitisers for the BBC comes from Watford Electronics. It uses the full graphics capability of the BBC in modes 0, 1 or 2, and images can be compressed, stored on disc, and hard copied using an Epson-type printer. In mode 2 there are eight levels of grey available.

Each scan takes 1-8 seconds, and the black and white levels can be manually adjusted, set to automatic, or reversed. The manual includes information on deriving the unit from Basic and using the images created together with text files and other programs, and the system software is provided on ROM.

Product: Watford BBC Digitiser Micro BBC 6 Prices: £95 Supplier: Watford Electronics, Jenna House, 590 Lower High Street, Watford, WD23 0T7/4



Since the introduction of the Apple Macintosh, the mouse controller has been the trademark of user-friendly, state-of-the-art operating systems. Mechanically, the mouse is quite simple; it consists of a rolling ball which is moved over the desktop, mechanical or optical sensors to detect the movement and transmit it to the computer, and buttons to select options from on-screen menus.

Of course, the mouse is only as good as the software it drives: usually, this takes the form of a series of pull-down menus presenting all the available options, photographs called icons to select different functions, and windows which open up to allow sub-routines to be called. A complete system of this kind, of course, goes by the acronym WIMP: Window, icon, menu (or mouse) program.

Most home-computers now have mouse systems specially designed for them. Unfortunately each system must have software tailored specifically for its apart from the upmarket Atari ST and Commodore Amiga, there is no standardisation. So, when considering a mouse system, you must also take into account the software available for it.

The best-established mouse for the Spectrum is the AMS. Produced by AMS, it is very well supported by a range of sophisticated software products from AMS themselves, and from an increasing number of third-party software houses.

The AMS mouse is an unremarkable blackish design, with three de-cent-sized micro-switches and a non-slip rubber ball. It comes with a 1½ metre cable, connecting it via a 35-way plug to an interface which plugs into the Spectrum's user port. The interface also includes a Centronics printer port, but you can also use an RS-232 printer if you have the Serial Interface 1.

The three mouse buttons are usually configured as Execute, Move and Cancel.

Provided with the mouse is a package of art programs and applications routines. AMS Art has the usual windows and icons, with drawing tools including pencils, brushes, boxes, patterns, magally,



The mousetrap

THE MOST USER-FRIENDLY SOFTWARE OFTEN USES WINDOWS, ICONS AND A MOUSE. BUT HOW DO YOU CHOOSE THE BEST MOUSE FOR YOUR MICRO? CHRIS JENKINS SNIFFS AROUND

pencil drawing area, the mouse can be used to produce very detailed drawings and technical diagrams. A gridlock facility makes it easier to produce precise lines with the mouse.

Also included is the Colour Palette program to colour your AMS Art pictures, and AMS Control, a sophisticated user interface routine to enable you to create your own mouse-driven programs using 28 new Basic commands. An icon designer, and two demos, a calculator and a sliding block puzzle, complete the package.

The AMS Mouse can also be used with Baird's Art Studio, Softik's Artist 2, and AMS's PageMaker layout package; however, this last is only available for the BBC and Amstrad PCW models. ◀

Mouse: AMS. **Price:** £69.95 **Supplier:** AMS, Freeport, Warrington WA1 1SR. Tel: 0925 418500.

The major rival to the AMS mouse is the Kensington model. Designed by the well-known popular interface manufacturers, this mouse looks nicer than the AMS, with a slicker body and two recessed switches. The Kensington Mouse comes bundled with a special version of Baird's Art Studio, which is certainly one of the best Spectrum graphics programs. The Kensington mouse's cable terminates in a D-plug which goes into the interface socket.

The Art Studio really comes into its own when used with a mouse - like so many other programs. If you have a

microdrive and Interface One you can also use the Kensington mouse with Softik's The Writer word processor, and the forthcoming Artist 2. Although the instructions provided with the Kensington mouse give numbers near as much detail as those with the AMS device, it is possible to incorporate it into your own programs either in Basic or machine code. Designing lines and window routines would be another matter. ◀

Mouse: Kensington. **Price:** £49.95 **Supplier:** Kensington, 10 Olsson Court, Redford.

The latest offering from Sage, following last on the heels of the Complanet expansion system reviewed two weeks ago, is the Star Mouse. Cheaper and simpler than the Kensington and AMS devices, there are versions for the Spectrum and the QL.

Bundled with the mouse, which features one large click-top button, is the CAD package StarDraw. You can also use the mouse with the excellent word processor The Last Word Word.

On the Spectrum version of the software, there are nineteen drawing commands available from the master screen, represented by icons on the right-hand side. These can be moved to the left, or removed from the screen altogether if you wish.

Facilities are pretty standard: pen, brush, texture, ellipse, magnify, cut and paste, and five text styles. There's also an



circle, spraycan and roller. Together with the multi-font text facility, and the Scroll option which gives access to a 416 x 284

Esque-type printer dump routine.

Although the software compatibility of the Star Mouse is pretty limited, for the price it may be able to offer all you need. Amstrad and CBMS4 versions are on the way. ◀

Mouse: Star Mouse Price: £49.95
Supplier: Sage, 2 Eves Road, Woking, Surrey GU24 4JT. Tel: 0450 33957.

The Commodore 64, with its high quality graphics and efficient (if not speedy) disc system, is one computer which is ideal for mouse applications. One of the best mice available is sold under a number of different names by Wiggins House, as the MS-3000, part of the Chess or Artist 64 packages, as the Chess Mouse, with Chess; and also as part of the Commodore Commodore's Compendium, together with the Chess software, the Commodore 64, database and a bundle of games software.

The MS-3000 is a little gem of engineering, with a stylish wedge-shaped design, two big comfortable buttons, and a large non-slip rubber-coated ball. It plugs into the 5¼" joystick port, and can in fact be used as a joystick if you power up the computer with the mouse's right hand button held down.

The Chess software package is an introductory graphics design program with a number of powerful features: line, dotted line, solid and empty polygons, reflections, fill patterns, and so on. It's possible to create excellent pictures very quickly and easily, but there are several missions including text entry, user-defined patterns, choice of storage format and so on.

For the more advanced user the Artist 64 software is ideal. This exploits the capabilities of the mouse to the limit, although sadly enough it doesn't use icons or windows, possibly because there are something like 320,000 different control combinations possible! Artist 64 was reviewed last week ago, and is arguably the best graphics package for the 64. Also on the way is a desktop WIMP program featuring a calendar, diary, clock, calculator, name and address directory and disc utility program, at £19.95. ◀

Mouse: MS-3000 Price: £44.95 with Chess, £59.95 with Chess and Desktop
Supplier: Wiggins House, 21 Savile Row, London W1X 1AS. Tel: 01-734 8829.

The MS-3000's major rival is the Data Mouse, which is very good mechanically but suffers from a complete lack of outside software support. The hardware is very high quality, finished in an IBM-

cream colour, and including three positive-action switches.

The graphics software included with the package operates in 640 line mode, which severely limits your choice of colour effects, but which gives a high resolution comparable to that of Eshelby's Art Studio software. Also available is a software enhancement package which offers a higher degree of user control over mouse functions. ◀

Mouse: Data Price: £49.95 **Supplier:** DEC, 14 Western Parade, Great North Road, Barnet, Herts EN5 1AD.

As a business-oriented machine with all the makings of a top-class WIMP system - good monitor resolution, decent operating system, speedy disc drive - it's surprising that there isn't yet an established mouse package for the Amstrad PCW. Two companies are working on it; predictably, Kempton and AMS.

The Kempton mouse will be supplied complete with an appropriate interface, and a software package called Desktop. This is a GEM-type environment with graphic design facilities. Price is expected to be around £69.95.

AMS's package is intended to be part of a complete "desktop publishing" system. This overused phrase, better applied to higher-spec systems such as the Apple Mac (which can be interfaced to a laser printer), might not be appropriate to the PCW, but we eagerly await the opportunity to compare these two attempts to crack the PCW mouse market. Full reviews coming as soon as possible.

Mouse: Kempton PCW Price: £59.95
Supplier: Kempton, as above.
Mouse: AMS PCW Price: TBA
Supplier: AMS, as above.

The cheapest mouse for the BBC is the Megamouse, again from Wiggins House. It is quite different to the MS-3000, a much heavier design with three switches. It's compatible with AMS's BBC mouse software, and with several packages from Wiggins: Chessbase, a sophisticated 3D design package with animation facilities at £29.95; The Artist (not to be confused with other programs of the same name), a powerful 80M program at £49.95; and a utilities package which allows you to produce colour screen dumps.

Also available for the Electron is the

Intermouse, with its own graphics program, Mousepoint. ◀

Mouse: Megamouse Price: £50 **Supplier:** Wiggins House, as above.

For an alternative, you are back with AMS for the 6801 version of their AMS mouse. This is among the best-supported home micro mice, with a 195 800M offering windows, icons and pull-down menus in a variety of colour modes, the Super Art program on 800M plus type or disc, and icon designer, the Pagesaver layout system, the 3D Space CAD package, and AMS databases, interactive examination programs, desktop packages, and mono and colour art programs. The basic package is £59 while the software add-ons are around £30 each. ◀

Mouse: BBC: AMS Price: £69 **Supplier:** AMS, as above.

With the advantage of a 68000-based machine with relatively large memory, any mouse for the QL would be expected to perform well. The Eiderolf mouse is similar in appearance to the AMS, with three buttons, and a cable leading to an interface box which plugs into the computer's 80M port.



The software provided with the mouse, ICE, is a sophisticated WIMP desktop system, contained in 800M. From ICE you can load ARTICE, a powerful graphics program; ICEOLE, a mouse-driven icon and window editor; and, with extra memory, any of the Pico programs using the CBORKE multi-tasking program. Also available from Eiderolf, as part of a continuing program of mouse software development for the QL, is the Express Mouse, similar mechanically to Wiggins's BBC Megamouse, but costing £59.95. ◀

Mouse: Eiderolf Price: £19.95 **Supplier:** Eiderolf, The Office, Hall Farm, 5, Ashdown, Upminster, Essex. Tel: 0708 80247.



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Fig. 23. SKEW-TKE IM - Comparison with SKEW-TKE-1 + 2

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CHOOSING A PRINTER CAN BE A BAFFLING PROBLEM. JOHN LETTICE LOOKS AT STAR'S RANGE AND SUGGESTS A FEW ANSWERS

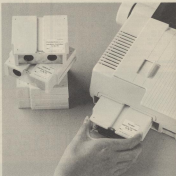
After the relatively simple decision of what computer to buy, trying to choose a printer to go with it comes as something of a shock. Unless you have opted for an Amstrad PCjr, which comes supplied with its own printer, there is very little guidance available on what to look for. There are, for instance, several types of interfaces; dot-matrix, 85-100, and the machine-specific Commodore Serial standards for a start. Then you have to decide whether you want a dot-matrix machine, for speed at the sacrifice of quality, or a daisy-wheel for the opposite. Do you need a tractor-feed printer to use continuous stationery, or a friction feed for single sheets? And is there anything to be gained from using a thermal printer?

Features

One solution to the problem is to get hold of a printer company's catalogue and work through its list of models, trying to select the one which does everything you need, but which has no redundant features for which you need to pay. There are certainly bargains to be found. For instance, the star NL-10 is by no means the company's top of the range printer, but a look at the features might lead you to believe otherwise. It's at the entry end of the consumer market at £227, but if you're looking for a flexible machine which will produce good quality output it's well worth thinking about.

It's sturdy and nicely designed, with a built-in tractor (rather than the flimsy clip-on variety), and tilting the paper gives you the choice of sheet-feeding. The printer itself has no 'standard' interface, but instead uses modular cartridges that simply plug into the back. Parallel, IBM parallel, Commodore and Apple II are all £40 each (one is included in the printer price quoted above) while serial is \$91. This kind of approach is handy from the manufacturer's point of view, and also gives you a certain flexibility if you want to change your mind.

As usual it's possible to vary the printer's modes by entering escape codes to it (depending on the interface used) but many of the features are accessible from the front panel. This gives you bold, three-width settings (the printer is technically 80 column, but allows you to switch



The NL-10's interchangeable interface cartridges

between 80, 90 and 136 column printing) and NLQ (near letter-quality) printing. It's also possible to set the printer to print in italics, and to vary the margins from the front panel (handy if you find your printout is cramped up against one margin).

Print speed is a healthy 120 cps in draft mode, and 30 cps in NLQ, both perfectly adequate for most standard tasks, and overall the NL-10 is well worth considering if you do a reasonable amount of printing and want good quality allied with flexibility.

The ST3-80 is a different bottle of fish altogether. It's a small 80 column thermal printer, with sophisticated features by the standard of thermals, but although the print quality is reasonable it's really geared to listings rather than correspondence.

It runs at 80 cps and features standard and enlarged modes (the latter 40 column) plus a black graphics and a bit

image mode. Line pitch can be varied, as can form length, and it has a full complement of dip-switches. Essentially it's a low cost printer that happens to use thermal technology rather than dot matrix.

But there's the rub. At \$85 the price isn't really low enough to make it a bargain compared to the cheaper dot matrix machines, which can be had for around £100, so its main selling point is in terms of noise - if you want something dead quiet then thermal's the right choice.

Daisy, Daisy

The more extrovert user might head for a daisy-wheel printer, although if you're looking to enlighten the Battle of the Broom Star's PowerType probably won't fit the bill. It still makes the annoying thump-thump noise that daisies are famous for, but the casing has been so well soundproofed that even in full flight it's

really almost bearable.

It features dual parallel and serial interfaces, three volume widths and a reasonably fast 18 cps printout speed. Paired with the impossibility of doing rate fold/MLQ type things on the front panel Star has indulged in a series of lamps instead. There's a power lamp to tell you when it's switched on, a busy lamp to tell you when it's working, a ribbon out lamp, a word processing mode lamp and a software mode lamp.

Manhattan skyline . . .

The word processing and software modes are intended to make the printer easier to use, the former being intended for commercial word processing programs, while the latter is more suited to programming.

Output

As with all daisies the Power Type can't be used for graphics, but there is still a quality difference between dot matrix and daisywheel output, and if you're on high quality output, for business letters and the like, then at £279 it's excellent value. Star also has a wide range of printwheels for it, so you'll at least have the facility to vary your text.

An £255 the Citizen L28-80 is marginally cheaper than its closest rival

here, the Star NL-18. It has a great deal in common with the Star, having built in IBM and Epson compatibility, 120 cps draft mode and 28 cps in NLQ. Like the Star its interface is removable, allowing the machine to be used by a number of machines, including Commodores and Macs.

Modes

The control panel looks traditional, but also allows you to switch modes between pica, NLQ, italic, emphasised, reduced and loop disabled (both dip switches) by pressing online while holding form feed down. This sort of system is sort of easy, in that you don't have to mess around with escape codes, but you never really know where you are with them. It would be better if there was some kind of mode indicator on the front. NLQ is actually accessed by a slightly different method, which makes it more or less confusing depending on your point of view.

Still, even without better guidance on the modes the printer is good quality, and manages to cover a fair number of features in for the price. Another point worth taking into account is its size - it's by no means the smallest of printers, but it is relatively compact, which could be important if you're short of space.



Star NL-18 is close-up

Deciding what facilities you need before you buy is a great time-saver, but remember that whether you want a printer for letters, word-processing, graphics or some specialised application like label-printing, it's a pretty important investment and you should choose carefully. ▀

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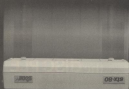
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Beef, Ground	1.10	Beef, Roast	1.10	Chicken, Wings	1.10	Shrimp, Fresh	1.10
Beef, Sirloin	1.15	Beef, Sausage	1.15	Chicken, Legs	1.15	Crab, Fresh	1.15
Beef, Tenderloin	1.15	Beef, Steak	1.15	Chicken, Thighs	1.15	Scallops, Fresh	1.15
Beef, Tri-Tip	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Clams, Fresh	1.15
Beef, Brisket	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Mussels, Fresh	1.15
Beef, Ribs	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Octopus, Fresh	1.15
Beef, Sausage	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Squid, Fresh	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Calamari, Fresh	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
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Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
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Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Legs	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Breast	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Drumsticks	1.15	Seafood, Mixed	1.15
Beef, Slices	1.15	Beef, Slices	1.15	Chicken, Wings	1.15	Seafood, Mixed	1.15
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Later, just about all micros were designed to work with TVs and some, like the Spectrum, were not designed to work with a monitor at all.

Things are so confused now that you can buy little black boxes that will turn computer monitors like the Amstrad and Commodore units into TV sets.

Dedicated

The reasons for buying a dedicated monitor are many, depending on what you want to do with your computer anyway. In all cases, it saves upsetting the family by hijacking the TV set during disturbances.

Most monitors are capable of displaying Monochrome text (provided that the computer has the capability) which is essential for word-processing.

Monochrome monitors are cheaper than colour, so if word-processing is your main activity, a high-resolution black & white, or green-screen, monitor might be your best buy.

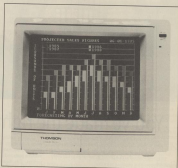
But most users want colour, and the main issue here is whether to go for RGB or composite video. Most of us don't have a choice, since most machines will work with only one kind or the other.

Composite video is cheaper but the quality of the colour display is not as high as RGB (Red, Green, Blue, the three separate colour signals).

Resolution

The main thing to look for when buying a monitor (apart from cost) is screen resolution - the number of dots the monitor can display. If you have a micro with high-resolution graphics, such as the Atari ST, you'll want a monitor that can display the graphics to their full effect. On the other hand, if you have a Spectrum or a Commodore 64, you shouldn't overpay since you'll be buying a facility that you'll never use.

In terms of quality, one other thing you might look for is the size of the individual dots on screen, usually given as the number of dots per millimetre. The higher this number the better. For example, the Macintosh does not have a particularly

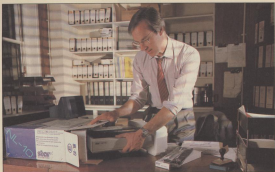


high screen resolution. The reason that graphics look incredibly sharp is because the monitor displays very small dots.

Finally, if you're a games player, make sure that the monitor you're thinking of

buying has a built-in loudspeaker. Most monochrome monitors, and quite a lot of colour models, don't. The models listed in the accompanying table are all colour, and all include a loudspeaker. ◀

Model	Price (£ex VAT)	Screen Size	Screen Resolution	Input
Philips CM14	170	14	Med	Comp/RGB
Sanyo CDS105	180	14	Low	Comp
Philips CM6500	230	14	Low	Comp
Toscan Vision P44	230	14	Med	Comp
Thomson CM6602 VPS	230	14	Low	Comp
Philips CM6501	240	14	Low	RGB
Microvite CJ1402	240	14	Med	Comp/RGB
Bantam CT9000	250	14	Low	Comp/RGB
Philips CM6502	260	14	Med	Comp/RGB
Philips CM6503	260	14	Low	Comp/RGB
Microvite CJ1603	300	14	High	Comp/RGB
Philips CM6603	310	14	High	Comp/RGB
Thomson CM1440 V	350	12	Med	Comp/RGB
Microvite CJ1805	380	20	Med	Comp/RGB
Thomson CM6600 S	390	11	High	RGB



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You want to choose a printer that looks after all your paper requirements; tractor, single sheet or multiple copies. The NI-10 has tractor feed as standard for continuous printing and an automatic single sheet feed to make letterheads really easy. There's even the option of a low-cost cut-sheet feeder.

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Communications data

DAVID WALLIN GIVES SOME POINTERS
ON BUYING COMMUNICATIONS HARDWARE
TO MATCH YOUR NEEDS

After a joystick, a MODEM is now probably the top peripheral people consider purchasing for their computer. This is mainly due to recent price drops. A modem can now be bought for under \$50. Printers, disc drives and other such peripherals (even a mouse) all have starting costs over \$50 and usually in excess of \$100. Modems can cost well over \$150 (the Pace Series 4 modem that I use costs \$175 and isn't even the top of the range model), but if you want to get into computer communications cheaply, and believe me it's worth getting into, then it can be done for under \$50—quite easily.

Firstly, I'll explain what the modem is. It's the box that goes between a computer and the phone line and enables one computer to talk to another (provided both use appropriate modems and software).

The two main things to look out for on a modem are the range of speeds (the more—the better) and the presence of *autodial* (autoanswer).

Specific

Modems, in use over the telephone lines, fall into 3 categories; machine specific (such as the Commodore modem and VTX 5000 for the Spectrum), general use modems (such as the Voyager II) and intelligent modems (such as the TeuCE and the Series 4).

The machine specific modem, is one designed for use with just one computer or a range of models of the same computer (e.g. BBC Spectrum, BBC Spectrum, Spectrum + and Spectrum 128).

1) For the Commodore 64 there's the Commodore Modem, currently available free from Compuserp with every one-year subscription (new data software costs \$11.99) and the Miracle Multi-Modem 64 which costs \$39.

2) For the BBC there is the Demos (Waltham Consultants) which costs about \$80, the Magic Modem from DataStar which costs \$89 and the Waford Electronics Le Modem which costs \$59. Personally, I would advise the Le Modem for a first time buyer as it is very easy to use.

3) For the Spectrum there's the Modem House VTX5000 which costs \$39. This modem has features and the software is Viradata (Prestel, Comec at Home etc.) only, but it is still a good modem and my personal choice for a Spectrum owner's first modem; indeed, it was mine.

4) For the Amstrad PCW's there's the KDS Communicator 8205 which costs \$132 and the Amstrad modem from PACE which costs around the \$100 mark.

In general these are the cheapest modems and often cost only \$20 or \$30 have features that, on the other two types of modem, would cost over \$125 or \$150.

Next, on to the general modems. Usually these will work with most computers, but often require special software to do so. These are modems such as the Voyager 7 and 11 from Modem House (\$50 and \$90 respectively) and the WS4000 from Miracle Technology which costs \$109. This class of modem is probably the most common and the modems generally range from \$75 to \$150 in price, depending on features.

Intelligent

Personally, I don't like these modems much. I prefer the machine specific or intelligent ones. This is purely a personal preference, and these modems work as well as the other two types.

Lastly, the top of the range modem is the intelligent type. These start at about \$150, and go into the low \$1000s. They work with 486 computer (provided it has an RS232C/Serial port) and require no special software. Many commercial software packages with communications facilities will drive what is called a Hayes modem. Hayes is a standard command set; other command sets include V25 and DaCom.

This is my favourite type of modem mainly because they are all similar and easy to use. Unfortunately, they cost a lot. About the cheapest is the WS4000 from Miracle Technology. This is about the best modem that you can get, either as your first one or as a replacement in present use. For under \$150, it offers 960, 1200 and 1200/75 speeds, autodial and answer and is upgradeable.

Approval

All that remains is to sum up how you go about choosing and buying a modem. If it's to be your first then a machine specific is usually the easiest to use. If you can afford it, an intelligent modem such as the WS4000 is a good choice. Look out for as many features as you can get for as low a price as you can find. Buying second hand is a good idea. If you can get a suitable modem. Lastly, remember that it is illegal to use an unapproved modem on the phone lines! ◀



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Fonts

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To obtain a form you should use the following statement:

Please ICM 776 x (15-01)

Where x and y are the text co-ordinates and n is the number of the font. The fonts are as follows:

- 1 — upside down
2 — left mirrored italics
3 — right mirrored italics

- 4 — board left
- 5 — board right
- 6 — clouster height
- 7 — quadruplicate height
- 8 — quadruplicate length

As the rest of the issue is published next week, the instructions for the character expander will be given then. If you want a copy of the program then send a tape plus \$3 to: R. Green, 106 Inglewood, Garden City, N.Y. 11530.

[illegible]

Pace

Graham Cook

Are you getting in the miles for the next London Marathon, or simply acquiring enough fitness to see you safely through those all night programming sessions? Either way Pace will help you.

You input the distance run and the time taken and get back your pace. You can then check out what equivalent time that



pace would give you for any other distance. Anything around 8-2 equates to

running the 10km and 28-2 marks you down as a fellow marathoner.

```

10 DIMAVE % pace
20 DIMAVE % by Graham Cook
30 PRINT
40 GOTO 100
50 INPUT PROMPT "Enter: "
60 IF VEIL=0 THEN GOTO 100
70 INPUT VEIL, TIME
80 DIMAVE % 1
90 DIMAVE % 1
100 PRINT VEIL, TIME
110 PRINT VEIL, TIME
120 PRINT VEIL, TIME
130 PRINT VEIL, TIME
140 PRINT VEIL, TIME
150 PRINT VEIL, TIME
160 PRINT VEIL, TIME
170 PRINT VEIL, TIME
180 PRINT VEIL, TIME
190 PRINT VEIL, TIME
200 PRINT VEIL, TIME
210 PRINT VEIL, TIME
220 PRINT VEIL, TIME
230 PRINT VEIL, TIME
240 PRINT VEIL, TIME
250 PRINT VEIL, TIME
260 PRINT VEIL, TIME
270 PRINT VEIL, TIME
280 PRINT VEIL, TIME
290 PRINT VEIL, TIME
300 PRINT VEIL, TIME
310 PRINT VEIL, TIME
320 PRINT VEIL, TIME
330 PRINT VEIL, TIME
340 PRINT VEIL, TIME
350 PRINT VEIL, TIME
360 PRINT VEIL, TIME
370 PRINT VEIL, TIME
380 PRINT VEIL, TIME
390 PRINT VEIL, TIME
400 PRINT VEIL, TIME
410 PRINT VEIL, TIME
420 PRINT VEIL, TIME
430 PRINT VEIL, TIME
440 PRINT VEIL, TIME
450 PRINT VEIL, TIME
460 PRINT VEIL, TIME
470 PRINT VEIL, TIME
480 PRINT VEIL, TIME
490 PRINT VEIL, TIME
500 PRINT VEIL, TIME
510 PRINT VEIL, TIME
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980 PRINT VEIL, TIME
990 PRINT VEIL, TIME

```

Programming: C64

U.F.O.

Steven Pattullo

Huge alien space stations are docking in on your home planet at Bob. You must fly your spaceship over the space stations and destroy

the reactor at the end with your own photon megablaster missile to stop the Earthling invasion.

However, defending suicide pilots will attempt to ram you and you are not allowed to leave the decks of the station, which is unfortunate because on later levels it is strangely shaped and you

won't know the configuration of the next screen until you appear on it.

This very long listing, with superb Tandy-style graphics, will be published over four weeks so if you don't want to type it in save £3 (or £1.30 plus cassette) to Steven Pattullo, 34 Southfield Road, Widnes, Cheshire WA9 5JL.

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If you feel you are a talented and experienced programmer/designer – working as an individual or a team – with exciting and original ideas, we would like to talk to you.

In either case phone Pete Stone at Palace Software on 01-278 0731 and tell him all about yourself.



218 FOR #=8 TO 7	1040 DATA 250,2,12,40,190,0,254,0
220 READ X	2080 DATA 170,170,165,165,165,165,165,165
230 POKE (14336+H*4096),X	2090 DATA 170,170,65,65,65,65,65,65
240 NEXT H,R	2094 DATA 165,165,165,165,165,165,165,165
250 FOR #=1 TO 32	2095 DATA 171,175,65,65,65,65,65,65
260 FOR #=0 TO 7	2096 DATA 65,65,65,65,65,65,65,65
270 READ X	2099 DATA 65,65,65,65,65,65,65,65
280 POKE (14336+H*4096),X	2100 DATA 165,165,165,165,165,165,165,165
290 NEXT H,R	2101 DATA 65,65,65,65,65,65,65,65
400 FOR #=0 TO 57	2102 DATA 165,165,165,165,165,165,165,165
410 FOR #=0 TO 7	2103 DATA 18,18,18,18,18,18,18,18
420 READ X	2104 DATA 65,65,65,65,65,65,65,65
430 POKE (14336+H*4096),X	2105 DATA 165,165,165,165,165,165,165,165
440 NEXT H,R	2106 DATA 18,18,18,18,18,18,18,18
1000 DATA 60,64,66,66,150,150,150,0	2107 DATA 65,65,65,65,65,65,65,65
1002 DATA 254,139,132,136,132,139,150,0	2108 DATA 165,165,165,165,165,165,165,165
1004 DATA 240,4,128,128,128,132,154,0	2109 DATA 233,233,245,245,245,245,245,245
1006 DATA 254,128,138,138,138,132,152,0	2110 DATA 235,235,65,65,65,65,65,65
1008 DATA 252,0,128,184,128,134,184,0	2111 DATA 234,239,39,39,39,39,39,39
1010 DATA 58,52,64,52,128,128,128,0	2112 DATA 39,39,39,39,39,39,39,39
1012 DATA 249,4,138,138,138,138,158,0	2113 DATA 39,39,39,39,39,39,39,39
1014 DATA 130,130,138,150,138,138,158,0	2114 DATA 65,65,65,65,65,65,170,170
1016 DATA 254,0,12,66,78,58,0	2115 DATA 65,65,65,65,65,65,170,170
1018 DATA 130,130,134,178,138,132,138,0	2116 DATA 245,245,245,245,245,245,234,170
1020 DATA 120,126,128,128,138,148,178,0	2117 DATA 245,245,245,245,245,245,245,245
1022 DATA 184,132,144,148,148,148,148,0	2118 DATA 0,0,0,0,0,0,170,170
1024 DATA 176,148,138,138,138,138,138,0	2119 DATA 65,65,0,0,0,0,0,0
1026 DATA 48,68,138,138,138,68,48,0	2120 DATA 39,39,39,39,240,240,240,240
1028 DATA 164,132,138,132,184,128,128,0	2121 DATA 0,0,0,0,0,0,0,0
1030 DATA 48,68,138,138,148,78,48,0	4000 DATA 254,254,190,190,190,254,254,0
1032 DATA 164,132,138,154,144,138,132,0	4002 DATA 24,24,24,24,24,24,24,0
2034 DATA 124,64,48,12,4,240,0	4004 DATA 254,254,0,254,192,254,254,0
2036 DATA 254,2,16,16,16,16,16,0	4006 DATA 254,254,14,254,14,254,254,0
2038 DATA 138,138,130,130,130,130,130,0	4008 DATA 192,216,216,254,254,24,24,0
2040 DATA 138,130,132,132,136,8,240,0	4010 DATA 258,254,192,254,0,254,254,0
2042 DATA 138,144,146,146,146,146,180,0	4011 DATA 252,192,192,254,190,190,254,0
2044 DATA 174,36,48,16,32,72,132,0	4012 DATA 254,254,7,7,7,7,7,0
2046 DATA 138,138,90,20,2,2,2,0	4014 DATA 254,254,190,254,190,254,254,0
	4016 DATA 254,254,190,254,254,14,4,0

Programming: Amstrad PCW

Card Index

John Tatch

Continuing on from last week, the main menu is now displayed. Most of the options are self explanatory. However, on option six allows you to enlarge a file beyond the capacity of the disc. To calculate how

many records you can have use this formula:

$$\text{No. of records} = \frac{\text{disc capacity} - 1000}{\text{total record length}}$$

Where disc capacity is 170 for Drive A, and 700 for Drive B, and total record length is the sum of each individual field lengths.

Always quit the program by using option 8, *Finish* otherwise information might be lost.

To use the program it is necessary to load CP/M and then Basic before entering the listing.

Should you not want to type it all in send a formatted disc and £2.50 to John Tatch, 4 Victoria Road, Gillingford, London E4 6BZ.

Programming: Amstrad PCW

```

0100 PRINT "Record copied. Press RETURN"
0110 GOTO 0100
0120 GOTO 0100
0130 GOTO 0100
0140 PRINT "Enter search criteria for each field:"
0150 PRINT
0160 FOR i=0 TO 99:GOTO 0160:GOTO 0160:GOTO 0160
0170 PRINT "Enter search criteria for each field:"
0180 GOTO 1
0190 FOR i=0 TO 99:GOTO 0190:GOTO 0190:GOTO 0190
0200 PRINT "Enter search criteria for each field:"
0210 GOTO 1
0220 PRINT
0230 PRINT "Enter search criteria for each field:"
0240 GOTO 1
0250 PRINT "Enter search criteria for each field:"
0260 GOTO 1
0270 PRINT "Enter search criteria for each field:"
0280 GOTO 1
0290 PRINT "Enter search criteria for each field:"
0300 GOTO 1
0310 PRINT "Enter search criteria for each field:"
0320 GOTO 1
0330 PRINT "Enter search criteria for each field:"
0340 GOTO 1
0350 PRINT "Enter search criteria for each field:"
0360 GOTO 1
0370 PRINT "Enter search criteria for each field:"
0380 GOTO 1
0390 PRINT "Enter search criteria for each field:"
0400 GOTO 1
0410 PRINT "Enter search criteria for each field:"
0420 GOTO 1
0430 PRINT "Enter search criteria for each field:"
0440 GOTO 1
0450 PRINT "Enter search criteria for each field:"
0460 GOTO 1
0470 PRINT "Enter search criteria for each field:"
0480 GOTO 1
0490 PRINT "Enter search criteria for each field:"
0500 GOTO 1
0510 PRINT "Enter search criteria for each field:"
0520 GOTO 1
0530 PRINT "Enter search criteria for each field:"
0540 GOTO 1
0550 PRINT "Enter search criteria for each field:"
0560 GOTO 1
0570 PRINT "Enter search criteria for each field:"
0580 GOTO 1
0590 PRINT "Enter search criteria for each field:"
0600 GOTO 1
0610 PRINT "Enter search criteria for each field:"
0620 GOTO 1
0630 PRINT "Enter search criteria for each field:"
0640 GOTO 1
0650 PRINT "Enter search criteria for each field:"
0660 GOTO 1
0670 PRINT "Enter search criteria for each field:"
0680 GOTO 1
0690 PRINT "Enter search criteria for each field:"
0700 GOTO 1
0710 PRINT "Enter search criteria for each field:"
0720 GOTO 1
0730 PRINT "Enter search criteria for each field:"
0740 GOTO 1
0750 PRINT "Enter search criteria for each field:"
0760 GOTO 1
0770 PRINT "Enter search criteria for each field:"
0780 GOTO 1
0790 PRINT "Enter search criteria for each field:"
0800 GOTO 1
0810 PRINT "Enter search criteria for each field:"
0820 GOTO 1
0830 PRINT "Enter search criteria for each field:"
0840 GOTO 1
0850 PRINT "Enter search criteria for each field:"
0860 GOTO 1
0870 PRINT "Enter search criteria for each field:"
0880 GOTO 1
0890 PRINT "Enter search criteria for each field:"
0900 GOTO 1
0910 PRINT "Enter search criteria for each field:"
0920 GOTO 1
0930 PRINT "Enter search criteria for each field:"
0940 GOTO 1
0950 PRINT "Enter search criteria for each field:"
0960 GOTO 1
0970 PRINT "Enter search criteria for each field:"
0980 GOTO 1
0990 PRINT "Enter search criteria for each field:"
1000 GOTO 1

```

[illegible]

```

0000 IF @RC=0000000000
0001 PRINT:PRINT
0002 PRINT "The file at present will all
be for up to 10 years' records."
0003 PRINT:PRINT "Do you wish to increase
a file? (Y/N) ?":
0004 IF @Y=0000000000 00000
0005 IF @Y = 0 02 THEN PRINT "Enter new record
maximum?":GOTO 0000
0006 PRINT:PRINT:PRINT "Enter new record
maximum?":GOTO 0000
0007 IF @RC=0000000000 00000
0008 PRINT:PRINT "The program will now
attempt to increase the maximum number of
records in the file."
0009 PRINT "but increasing this will
reduce capacity of the disc drive could
cause a 'fatal'!"
0010 PRINT:PRINT "Do you still wish to
increase record maximum? (Y/N) ?":
0011 IF @Y=0000000000 00000
0012 IF @Y = 0 02 THEN PRINT "Enter
new record maximum?":GOTO 0000
0013 PRINT:PRINT:PRINT "Enter record
maximum value."
0014 FOR I=1 TO 1000
0015 READ #1:GOTO 0016
0016 NEXT I
0017 FOR I=100000 TO 1000000
0018 PUT I,1
0019 PRINT #1:GOTO 0016
0020 NEXT I
0021 CLOSE #1:GOTO 0016
0022 CLOSE #1:GOTO 0016
0023 IF @RC=0000000000 00000
0024 PRINT:PRINT "File extension
complete - press a key."
0025 IF @RC=0000000000 00000
0026 GOTO 0000
0027 END
0000 REM = END OF =
0001 PRINT #1:PRINT:PRINT
0002 PRINT "Do you really want to finish
the program (Y/N) ?":
0003 IF @Y=0000000000 00000
0004 IF @Y = 0 02 THEN GOTO 0000
0005 PRINT

```

[illegible][illegible][illegible]

Programming: Spectrum

Championship Bowls

Cathy Sargent

Harry's, the local part of Keweenaw history. There is the long tradition, that it started

correct any errors in the data. When the code is error free the program will save it to disk.

To run the game the following line should be entered - Clear 55555: Load *** Code: Randomize Chr 55555

[illegible][illegible][illegible]

Invert

North

This program for the Spectrum will insert the entire screen, that is change every bit pixel to Paper and vice versa. The program also includes a routine to copy the whole screen (not just the top 23 lines) to any printer using the Poincaré routine. If this is not required leave out line 210.

```

40 LET address=65000
50 LET a=0
60 READ b
70 IF b=999 THEN GO TO 110
80 POKE address,b
90 LET a=a+1
100 GO TO 60
110 PRINT "All data correct. Use RANDOM
   IZE USR 65000 to invert screen."
120 IF a=3 THEN STOP
130 PRINT "Use RANDOMIZE USR 65004 for
    24 line copy."
140 DATA 329,197,213,33,0.64,6,192,197,
    6,32,126,47,116,32,16,260,193,16,244,209
    ,198,233,201
210 DATA 243,6,192,33,0.64,192,178,14
220 DATA 999

```

Code Send

MCQs

This is a procedure for the Q4 designed to make the sending of notes to the printer far easier.

Channel 4 is assumed to be opened to the printer before the procedure is called. It can be used in various ways as follows.

See 33, 66 or See 100.1 or See 150. 66 will all send codes to tell the printer to perform synchronized print.

```

100 REMARK A. CHARLIE OLIER - GUNNERY 1988
110 DEFINE PROCEDURE SET(m#)
120 LOCAL a#,h,y
130 h:=1:y=1
140 p#:=p# & ','
150 REPEAT loop
160 IF h> LEN (p#) THEN EXIT loop
170 REPEAT find
180 IF p#(h)='.' THEN EXIT find
190 h=h+1
200 END REPEAT find
210 a#:=p#(y TO h-1)
220 IF a#='ENC' OR a#='enc' THEN LET a#='2?'
230 IF CODE (a#(1))>=48 AND CODE (a#(1))<=57
240 PRINT#4;CHR$(a#);
250 ELSE
260 PRINT#4;a#;
270 END IF
280 y=h+1:h=y
290 END REPEAT loop
300 END DEFINE SET

```

Shaded Shapes

D. B. Almon

These two procedures for the Q_2 fill an area, circle or rectangle, with cross-hatching.

Shade Circle requires the programmer to specify x and y (the centre of the circle), r (radius) and i (separation of shaded lines).

Shade fill requires a location of bottom-left corner of the box, $x1$ and $y1$ (the sizes of the sides of the box) and A (in degrees).

```

100 MOV PC,PCOREN,SHAD,CIRCLE,0,0,1
110 LOGO "A,B,C,D"
120 FOR I=0 TO 3
130 FOR J=0 TO 4 STEP .5
140 FOR K=0 TO 5 STEP .5
150 FOR L=0 TO 5 STEP .5
160 FOR M=0 TO 5
170 LINE (I,J),POINTED TO A-B,POINTED
180 END FOR K
190 END FOR J
200 END FOR I
210 MOV PC,PCOREN,SHAD,CIRCLE,0,0,1
220 FOR I=0 TO 3
230 FOR J=0 TO 4 STEP .5
240 FOR K=0 TO 5 STEP .5
250 FOR L=0 TO 5 STEP .5
260 FOR M=0 TO 5
270 END FOR L
280 END FOR K
290 END FOR J
300 END FOR I

```




With Kenn Garroch Printer problems

Parsons Clough, of Sisker and Derry, writes:

Q I would be grateful if you could tell me which printer (if any) is compatible with the Commodore 128. What interface would I need to buy and how much will it cost?

A The simplest solution is to buy a Commodore printer. With this you will be able to plug it in, and off you go. The MPS 801 costs about £130 and the MPS 1000 about £270, and you should be able to get one from any Commodore stockist.

The alternative is to buy a Centronics interface and any other dot matrix printer you fancy. Any will do, as long as they have a Centronics interface. A Centronics interface for the C128 can be obtained from Calco Software, Lakeside House, Basington Hill, Surrey KT2 8QY, and costs £29.95.

Graphic confusion

P S White, of Chatham, Kent, writes:

Q I would like to ask for a little help in typing in computer programs from magazines. The problem is that I cannot make head nor tail of some of the graphics commands. Is there a book I can get which will show all of the graphics characters, as this is causing me great difficulties.

Is it possible to run the listings for the Commodore 64 in 128 mode as I

have a Commodore 128, or do they always have to be in 64 mode?

In some recent adverts in your magazine for mainframes, some are priced around £100, others are free, but require me to buy three months subscription. There must be a difference and limitations but, what are they?

A The most common symbols and the keys are shown below. Some of them I have outlined with dots to show that the symbol is actually a square with two of the sides cut down. If you want more information, try *Programming the Commodore 64* by Eric West, published by Level Computer Publications, PO Box 438, Hampstead, London, NW3.

Shift + CLR Home	␣	0 + 1	␣
CLR Home	␣	0 + 2	␣
Shift CLR	␣	0 + 3	␣
CLR	␣	0 + 4	␣
Shift CLR	␣	0 + 5	␣
CLR	␣	0 + 7	␣
CLR + 0	␣	0 + 8	␣
CLR + 1	␣	0 + 9	␣
CLR + 2	␣	1	␣
CLR + 3	␣	Shift 1	␣
CLR + 4	␣	2	␣
CLR + 5	␣	Shift 2	␣
CLR + 6	␣	3	␣
CLR + 7	␣	Shift 3	␣
CLR + 8	␣	4	␣
0 + 1	␣	5	␣
0 + 2	␣	Shift 4	␣
0 + 3	␣	6	␣
		Shift 5	␣

Programs written for the 64 generally won't run in 128 mode on the C128 especially if there are Jiffy calls involved. If, however, the program is simple basic, then it probably will.

There are basically three types of modem advertised:

the first, and most expensive, has multiple speeds, say, 1200/120, 1200/1200 or 300/300, and you will be able to switch with a bulletin board, Mocomm, etc. The second type is the single speed type having just 1200/75. This is generally for use with a related service such as Microware. There are a few bulletin boards around that support this speed, but certainly not all. This type is, however, about half the price of a multi-speed one.

The third type is that sold along with a subscription. This is basically the same as the second type which, at around £50, is about the same as three months subscription, the idea being that once you have started using the service, you are unlikely to stop after three months, especially if you are effectively tied in to the type of modem you have.

Indirectly speaking

A Smith, of Plaster on the Hill, London, writes:

Q I am learning to program in 6502 machine code having already mastered the 6501. I am somewhat confused by the term indirect addressing, so could you explain how this works?

A The 280, as you probably know, does not have true indirect addressing. The nearest it gets is using one of the register pairs to hold the address at which you want to load or store something. True indirect addressing is where the address of the memory location to be operated on is held in memory.

To access something at say \$2401 you could either simply \$04 \$2401 or, indirectly put the address in memory at, say, \$47 and \$42, the instruction would then be \$24 (\$47). What the processor does is to look at location

\$47 and get the contents. This forms the lower byte of the 16 bit address.

It next gets the contents of location \$42 and uses this as the high byte of the 16 bit address. Having found the address, it then performs the operation.

On the 6502, things are not quite as simple as this since the indirect operations are always in conjunction with the X and Y index registers (except from jump indirect, JMP (address)). The opcodes are post indexed indirect, (address), Y and (address), Y and (address), Y.

Post indexing simply gets the address from the memory locations, which must be in the zero page memory from 0-255 is zero page, as before. The contents of the Y register are added to this address to give the 'effective address' at the address at which the operation is to be performed. For example:

\$24 (\$47), Y where Y contains 6
\$47 contains \$01
\$42 contains \$5A

The address \$2401 has the contents of the Y register added to it to give the effective address \$2407 as the contents of the accumulator are stored in \$2407.

By adding the contents of the Y register to the zero page address following the instruction, and then using this value as the address where the effective address is stored, for example:

\$04 (\$A1),X where X contains 6
X is added to \$A1 to produce the address \$A7
\$A1 and \$A8 contain the effective address to be used e.g.
\$A5 contains \$01
\$A6 contains \$5A

So the contents of the address \$2401 are loaded into the accumulator.

Indirect addressing is useful for accessing tables of information. The pre-indexed version can access data spread all over the memory simply by having a table of addresses, each pointing to a place of data. The post indexed method is useful for accessing different tables spread around the memory. Simply put the address of the relevant table in the zero page then use this along with the Y register to access it.

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek & Poke* to Kenn Garroch and every week he will *Peek* back as many answers as he can. The address is *Peek & Poke*, PCW, 12-13 Little Newport Street, London WC2N 3LD



So much more for your 64

Mark Jenkins expounds on the Expander and answers some of your letters

The Commodore 64 remains one of the most popular music micros, simply because the choice of high-quality add-on hardware is so great. Commodore's own models, the FM Sound Expander and Keyboard, are justifiably popular, although from the time the Expander was first launched, the call has been for a software package which made it possible to edit its synthesiser sounds.

The wait is over, because the FM Editor/Composer is now with us. This disc allows you to compose polyphonic music, to edit it, to assign Midi channels for its playback, and to create new sounds to play it with.

The Composer section opens with a double music track which allows you to choose a key signature, tempo, voice to be used and so on. Notes are then programmed using the computer's keyboard or the Commodore music keyboard; you can enter one note at a time, and add notes, copy blocks and so on.

The FM/Midi page assigns each of the eight FM voices plus permission to a Midi channel and decides whether you want to clock the music internally or externally (say, from a Midi drum machine). There's a new set of 64 internal FM voices which are far superior to the original set, and you can save and load music and voices.

The voice editing software is separate on the disc, and the setup facility allows you to choose an upper and lower sound, split point, transposition, percussion on/off and Midi on/off. After that stage you go on to the full page project which has five graph displays for Brightness, Envelope, Pitch 1 and 2, Vibrato 1 and 2, Tremolo and other parameters.

The drum machine section allows you to create kits from a selection of sounds, and write patterns on a graphic display of a single bar. There's also a rather wonderful Beat Machine section, which matches up sounds at random and gives you the opportunity to edit them into something really useful.

Overall this package is a very valuable addition to the FM Sound Expander. Not only is it a compulsory purchase for existing Expander owners, it's also going to make the whole system much more attractive to potential purchasers who found the original setup a little limited.

A pity that the sound editing facilities are so basic — they do give you a lot of

possibilities, but nothing on the scale of the 147 sound parameters offered to users of the DXF. Still, you can't have everything.

The Sound Expander has cropped up in several readers' letters recently, notably one from Steve Bell of Durham who takes exception to our basic classification of micro musicians into three categories — beginner using sound chip software, intermediate types splashing out on add-on hardware and keyboard, and advanced composers using Midi interfaces and samplers/synthesizers. Steve told a Commodore Sound Expander and sampler in favour of a Casio CZ1000 synth and Roland TR808 drum machine, but continues to use the 64 with a Data



Midi interface and Rainbow Advanced Music System software. While the software plays the synth, the drum machine plays itself, and Steve plays guitar.

Steve's new looking for a sequencer package with a similar graphic input method to the Rainbow and step time note entry as well as real time. Unfortunately we don't know of such a package which supports Midi as yet — most Midi packages are clear of scoring music staves because of the vast amount of information involved in transcribing polyphonic tracks.

However, Steinberg's Pro 16 Ion disc or MPROM will record in real or step time, and you can transfer its files to the TR8 Beat Editor for transcription. Alternatively you can get hold of Cubase, which is the most powerful 64bit composition package about at the moment, although it doesn't offer musical notation.

Steve suggests an exchange scheme for users of certain software packages, so if anyone would like to exchange files (together with notes of what type of sounds are played by what channels) we'll be happy to put you in touch with

each other. Steve also asks about sheet music suppliers for chart material, and Music Sales (the distributors of the Commodore Expander) are probably the best bet here.

A brief letter from Neil Bellin asks what drum packages are compatible with the Commodore Sound Expander. The answer is, of course, none — in that you can't run any 64-based drum package at the same time as Expander. The Tron Degidrum probably has the edge on Data Degidrum otherwise, so your solutions are to buy a second micro to run one of these, go for a dedicated drum machine such as the lively and inexpensive Roland GD-230, or add drum sounds using the FM Editor/Composer discussed above.

And a Mr. Angle of Stoke Newington wonders whether the Casio CZ2300 synth may not be a better buy than the CZ101 for computer control. Well, the 230 is a little more expensive in most shops, but has an excellent programmable PCM-sampled drum machine built in. It offers 69 synth sounds, of which only the last four can be re-programmed, and then only using CZ editing software from Steinberg, Jorsh or similar. It has eight voices, can play four different mono voices on different Midi channels in solo mode, and its last sounds exactly the same as the CZ101. But you can't save the PCM drum sounds to a micro (you can save the patterns to tape however, and can make up synth drum sounds which can be saved to the micro and mixed with the drum machine beats). So overall, the main factor in choosing between the 2300 and the 101 is whether the drum machine is important to you, or whether you'd prefer to keep on-board your micro by using a Tron Degidrum, Data Degidrum or FM Sound Expander.

Steinberg, The Spendlove Centre, Chalfont, Oxford OX7 3PD, 0898 811323. Music Sales, 70 Newman Street, London W1P 3LA, 01-631 1845.

If you have any queries or tips for this column, please write to Mark Jenkins at Popular Computing Weekly, 12-13 Little Newport Street, London WC2N 6PP. Mark would also welcome examples of your own music on audio or program tape or disc.

The public domain of communications

David Wallin answers electronic and snail mail from readers

Today I've got more answers for you. Some are to letters that have been sent in and some to queries left on Promethues.

For those of you who don't know about Promethues, it's a viewdata board which specialises in astronomy. It also has a *Popular Computing Weekly* section where I can be left questions, comments, etc. Answers will be printed on the board as soon as possible. Contacting me via Promethues is much much quicker than by snail mail, and for Lerd donors it may well be cheaper. The number of the board is 01-300 7177. Viewdata format. To reach my section type "Mile at any time or select option eight from the main menu.

Someone who goes by the name of Bill has left a question asking for information on the availability of scrolling (ASCII type 68) software for the Spectrum. Well, assuming that you have a VT330000 modem, Modern House has two packages, VTX FSG which costs £7 and gives ASCII emulation and VTX user-register which costs £4 and is for user-to-

user communications at 1200/1300 baud duplex.

Both are supplied on tape, and Modern House's address is 70 Longbridge Street, Exeter, Devon EX4 8AP. Micro-net 800 also has ASCII terminal emulation software available for download, which may be of use if you are a member.

There was at one time an ASCII emulation package available from Stephen Adams who runs the Spectrum Bulletin Board, the number of which is at the bottom of this article. It may no longer be available, but contacting Mr Adams will enable you to find out.

Next, Mike Leek wants to know where he can get XModem or Modem 7 (public domain communications software) for the Amstrad CPC 6128 and configure it to work with the Comet Prestel interface. XModem is available for the 6128 under the name of CPCXDM7.COM. However, I don't know how you could configure it for the Comet interface and hardware modifications to the interface may be necessary.

If you want to try, the software is



available from the public domain Bulletin Boards, but unfortunately most of these are not viewdata systems and I would assume that you only have viewdata compatible software. Two boards with Amstrad sections which are viewdata compatible are the Dark Crystal and the London Linking Board. Their numbers are 01-554 8847 and 01-653 0188 respectively.

A new piece of PD comm software available for the CPC 6128 is Max - Modern Executive. This is very powerful as PD comm software goes. It includes a form of JCFs/Tasks and can run a CP/M application whilst on-line without causing a disconnection. I hope that one of the two programs will be of help. Mike, if not let me know and I'll dig further.

Phil Rice wants to know if Dragon comm's software is still available? Yes, it is. Modern House does a cartridge for viewdata comm at £35 and Tandata has an ASCII and viewdata microchrome only cartridge for £45. So, yes, you can still communicate on the Dragon.

Amstrad communications package released

Hot news for Amstrad PC1612 owners, and those who would like to join them if they could get hold of a machine.

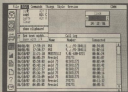
Digital Research has launched a communications package, specifically for the machine, running under Gen.

DR, producer of the Gen software system, commissioned the package from Visions, author of the highly acclaimed Macintosh programs of the same name.

Gencomm is stuffed with features, all of them conforming to the Gen standard.

For example, you can create log-on files for any on-line service such as Prestel, Telecom Gold, or USI services like Compuserve.

These files hold the telephone number, your password and ID number, baud rate and other protocols.



You give each one a name, then whenever you want to connect to the service you simply enter the name and off back

while the PC does all the work.

You can compose messages, telefax and viewdata frames off-line, as well as grabbing frames and text while on-line as you can inspect them later. Doesn't half keep connection costs down.

There's also a phoning (printed here) which keeps track of all your comm activity.

At only £99.95, including Vat, it looks like outstanding value for money. It should be in

the shops now.



A thousand years of stalking the King

Martin Bryant discusses the myriad ways to check-mate, self-mate, halo-mate.

This week I will take an introductory look at chess problem solving, and the role computers play in this fascinating field. Because of the complexity of the subject, one cannot cover it completely in one article, so I will look at the current best programs and various studies of solving ability in future weeks. I will concentrate here on the history of chess problems and the basic concepts.

It is evident that game manuscript collections were made over a thousand years ago. However, in the early days, there was little differentiation between problems and composed endgames. Up to the last century the solutions were mainly a series of checks with many sacrifices — the type of manoeuvring that would be considered brilliant in a real game. Nowadays, the solutions are much less obvious, preferably involving an obscure or a more or less

So, to the basics. What actually are chess problems? There are certain conditions which problems must satisfy to be considered "correct". The most important is that there be one - and only one - solution. If a problem is found to have more than one answer it is considered spoiled. The most from the problem takes it apart to wide variation, though. Unless you have done some study of the field, you would probably be surprised by the range of weird and wonderful types of problems devised to test the chess computer's basic (and the composer's) skill. Apart from the renowned "Mate in N" category, there are such things as self-mates, help-mates, series-mates, and even "Tut" mates. The last group involves "adversarial" pieces which can cause an opponent's man to attack their own king! Some other problems have been designed which actually involve over 100 moves!

Let us first look at a simple, normal male. While it is more first and check-male Black against any defence in two moves (see diagram 10).

This problem is taken from the "Hamas Newsline," *Good Communications*, <http://www.gocomm.com>.

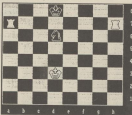


Diagram 100 (continued): This diagram is similar to diagram 99.

singer, which is one of the earliest known collections of chess problems, printed around 1288. The solution is 5.Rc7-g7. Whenever Black then goes, White has a checkmate next move. Many computer chess programs available today have the ability to solve problems of this nature. Their speed may vary greatly, though, and if a program takes more than a couple of seconds on a "Mate in 2", it is probably not worth the time it's taking. Still, the best programs are able

significantly faster multiplication calculations than is seen when these cases are divided.

Now let us try a half-move. Here the side moving first does not checkmate the opponent, but forces the opponent to checkmate him instead. So, in this next problem White is to move first and force Black to mate him in two moves (see diagram below).

The first move of the solution is 1 Cb5-b4. Now Black has no way to avoid mating White, e.g. 1 - , Qc6-b6, 2 Rd1-d2+, forces Qb6c7 Checkmate.

Help-wanted ads are the easiest type to demonstrate. Here both sales associates to make the first sale to move. Just take a chess board set up in its opening position and

It is a helpmate in chess. Ever heard of "Fool's Mate"? It goes 1 P_{g3}-g4, P_{e7}-e6, 2 P_{f2}-f3, O-O-O-B4 Checkmate! This brings me to the role of computers in chess problem solving.

If problem designers find more than one solution to their problems, they will adjust it until the vague solutions have been eliminated. At this point a computer program can be of great assistance. Instead of racking their brains for hours to find a "nearly sure" (and then not certain) that only one solution exists, they can just get the program to search for all possible solutions and modify the problem if necessary.

Many people consider using programs to solve problems pointless because it takes away the "pleasure" of finding the solution. I disagree. I am much too lazy to plough through hundreds of problems, working them out myself. Even if I look up the answer, I sometimes cannot refuse some variations without noticeable effort. By using a program to analyse difficult lines, I can appreciate quickly and easily the beauty of the problem and the ingenuity of its author. After studying hundreds – perhaps thousands – of problems with the help of my programs I have an appreciation of chess problems I would never otherwise have had, and a great respect for the authors' ability to create such ingenuity on a chess board.



Diagram now follows the theory of self-
renewal.

100

New Releases

John Cook looks through this week's new arrivals

Amstrad CPCs

Program Time Copia Type Arcade Price £1.99 Micro
All Amstrad CPCs Supplier
Code Masters, 1 Deansgate
Business Centre, Deansgate
Court, Barburys, Dean D3 1E
7DT.



Program ISO Type Simulation Price £2.99 Micro
All Amstrad CPCs Supplier
Mastertronic, 8-10 Paul
Street, London EC2.

Program Oliver Ruler Type Arcade Adventure Price £5.95 tape, £10.95 disc Micro
All Amstrad CPCs Supplier
Quicksilver, Victory
House, Leicester Place, London W2CH 7HB.

Program Jungle Jane Type Arcade Price £2.99 Micro
All Amstrad CPCs Supplier
Bug Byte, Victory House,
Leicester Place, London W2CH 7HB.

Program Answer Book Junior Club Type General Knowledge Quiz Price £5.95 tape, £10.95 disc Micro
All Amstrad CPCs Supplier
Kemos, 1 Pilgrims Close, Harlington, Donstable, Beds LU5 8LX.

Program Cap-Out Type Arcade Price £5.95 tape, £10.95 disc Micro
All Amstrad CPCs Supplier
Moxam, Unit 18, The Western
Centre, Western Road, Beckenell, Borel RG12 1PW.

Program Day Sails a Million Type Strategy/Adventure Price £9.95 Micro
All Amstrad CPCs Supplier
Aristocrat, 68 Long Acre, Covent Garden, London WC2E 8JH.

Atari XL/XE

Program Los Angeles SWAT Type Arcade Price £1.99 Micro
Atari 8000XL, 1300XL
Supplier Entertainment
USA, Mastertronic, address
as above.



Program Chicken Chase Type Arcade Price £3.99 Micro
Atari 8-bit Supplier
Bug Byte, address as above.

Program Seal is Reality Type Arcade Price £1.99 Micro
Atari 8-bit Supplier
Mastertronic, address as above.



Program Heart of Africa Type Graphic Adventure Price £14.95 disc Micro
Commodore 64/128
Supplier Aristocrat, Long Acre, Covent Garden, London WC2E.

Infocom is the top US adventure label, and Epic the undisputed leader in arcade games. Electronic Arts must be top of the strategy league.

Following its earlier masterpieces like *Joshua*, *Seven Cities of Gold* and the brilliant *Raid's Tale* (see Games this week), comes *Heart of Africa*.

Like other Electronic Arts products, it's distributed here by Aristocrat. And it's well up to the now-expected high standard.

It has a lot in common with *Seven Cities*. But there are many differences apart from the obvious shift of continent.

You have been chosen to inherit the wealth of African explorer Hiram Perkins' Prison. But to get the houses, yachts and bank accounts

A hearty game

you have to complete his life's quest to discover the lost tomb of Pharaoh Ankh Ankh.

The natives are more or less friendly, the wildlife almost unanimously hostile, and your expedition will contend with disease, starvation, sinking canoes, baking deserts, and sundry other hazards.

The complications are extra funds when discoveries are made, and the excitement of exploration and a good detective story.

It looks like another winner.



Atari ST

Program Winter Games Type Simulation Price £24.95 Micro
Atari ST
Supplier US Gold, Unit 2 and 3, Hatfield Way, Hatfield, Birmingham CV9 7AX.



Program Phantasia Type Role Playing Adventure Price £24.95 Micro
Atari ST
Supplier Strategic Simulations, via Slick Shop, 1-4

The Mirror, Hatherley Road, Sidcup, Kent DA14 4QX.

Program War Zone Type Arcade Price £19.95 Micro
Atari ST
Supplier Paradox, 48 Rhodes Avenue, London M20 4LR.

Program ST Frontier Type Arcade Price £19.95 Micro
Atari ST
Supplier Paradox, address as above.

BBC B/Electron/Master/Compact

Program Shylock Type Arcade Price £1.99 Micro
BBC/Electron Supplier Bug Byte, address as above.

Program The Musical Collection Type Utility Price £19.95 Micro
BBC/Electron Supplier
Duckworth, The Old Pinna Factory, 43 Gloucester Crescent, London NW1 7DT.

Program Ramified Type Utility Price £37.00 Micro
BBC

Master Compact Supplier
Claris Micro Supplies, 88
 Middlewich Road, Radcliffe,
 Northwich, Cheshire CW9
 7DA.

Program Action 3 Type Arcade
Adventure Price £3.95
 tape, £11.95 disc, £14.95 3½
 inch disc **Micro Acorn**
 Electron, BBC B, BBC Master
 Compact **Supplier Superior**,
 Regent House, Skinner Lane,
 Leeds LS2 1AS.
 Bug Byte, address as above.



Program Porcine Plus Type
Utility Price £22.00
Micro BBC Master Compact
Supplier Claris Micro
 Supplies, address as above.

Program Porcine Post Editor
Type Utility Price £22.00
Micro BBC Master Compact
Supplier Claris Micro
 Supplies, address as above.

Program Arccon Type Utility
Price £27.00
Master Compact, £25.00
Micro Acorn Master
Compact, Master 128
Supplier Claris Micro
 Supplies, address as above.

Commodore 64/128

Program Dugly Type Graphic
Adventure Price £7.95
Micro Commodore 64
Supplier CR, 8 Kings Yard,
 Carpenter Road, Stratford,
 London E16.

Program Another Type
Arcade Price £2.99
Micro Commodore 64/128
Supplier Interimetric USA,
 Mastertronic, address as
 above.

Perhaps an understated
 whodunnit set apart from the sound-
 track, Panther nonetheless

provides a fair amount of entertainment for its budget price, and kept the occupied to the point where the alien fighters became impossibly fast and frantic for my athletic fingers.

Panther presents a view of a reasonably colourful and detailed landscape shown from a three-quarters on angle. Your fighter skims along, blasting waves of alien and making landings to pick up survivors of the alien attack. In this respect, Panther is somewhat like Chapter.

The alien fire whirling energy belts, and follow you until you slow down to its bards with them. There's a radar screen to warn you of incoming hostiles and various score displays, plus lots of different backgrounds including seas dotted with oil platforms which present difficult landing spots.

Lotus tapping fun, and guided by a sophisticated soundtrack which, unless my ears deceive me, must be by David "Panic Pie" Whistler.

Program Dredge Type
Adventure Price £7.95
 tape, £12.95 disc **Micro**
Commodore 64/128
Supplier CR,
 8 Kings Yard, Carpenter
 Road, Stratford, London E16.

Program Hunt of Africa
Type Graphic Adventure
Price £14.95
 disc **Micro**
Commodore 64/128
Supplier Amsoft,
 Long Acre, Covent Garden, London WC2

Program Alien Type
Strategy Price £1.99
Micro Commodore 64
Supplier Bug
 Byte, address as above.

Program Flash Type
Arcade Price £2.99
Micro Commodore 64
Supplier Mastertronic,
 address as above.

Program Storm Type
Arcade Price £1.99
Micro Commodore 64
Supplier Mastertronic,
 address as above.

Program They Stole a Million
Type Strategy/Adventure
Price £8.95
Micro Commodore 64/128
Supplier Amsoft,
 88 Long Acre, Covent Garden, London WC2E 9JH.

Program Judge Dredd Type
Arcade Price £9.95
 tape, £14.95 disc **Micro**
Commodore 64/128
Supplier Melbourne
 House, 95 High Street,
 Hampton Wick,

Kingston upon Thames, Surrey KT1 4DE.

It's a good 18 months since the idea of producing a computer game version of Judge Dredd was mooted, but here it is at last from Melbourne House.

Chaotic is probably the best word to describe this implementation, appropriately enough considering the original comic strip. Fantastic music plays as you hurtle from location to location trying to prevent eight crimes occurring in each level.

The solid graphics and well-animated characters too, the baddies, rats and miscreants do much to disguise the fact that this is dressed up platform and ladders played at a hair-raising pace.

In keeping with his origins, the Judge occasionally has buttons coming out of his mouth, with some suitably tough-guy statements (one of them looked rather rude, but it turned out to be only 'Gum!').

Judge Dredd fans will probably enjoy this extension of the comic; for others it doesn't promise anything remarkably new.

Program Mr Ar King Fu 2
Type Arcade Price £8.95
Micro Commodore 64
Supplier Imagine, 4 Central
 Street, Manchester, M2 9NS.

Judging by this effort, martial arts games must be nearly played out by now. KARP 2 adds little or nothing to other games such as Kung-Fu Master, For 2, or indeed KARP 1.

Most disappointing is the general standard of design and animation of the characters. Most of them are blobby and uninteresting, and move with clumsy jerks. The flying snakes look like page heads, for some reason.

There's a two-player option - which hero Lee Young can be played against the faces workloads such as Iron Fists and Yan-Pei did you need - but the relatively limited number of fighting moves available, and the slowness of response, means that this is too imprecise to be any fun, and the thrill of looking for magic techniques and goodies to enhance your fighting strategy isn't quite enough.

Not even Martin Galway's twangy Yellow Magic Orchestra-inspired soundtrack can do much to relieve it.

Program Arkback Type
Arcade Price £1.99
Micro Commodore 16
Supplier Bug
 Byte, Victory House,
 Leicester Place, London WC2H 7NS.

As we all know, the soundtrack is the world's most intelligent and charming animal. Why, then, has it taken this long for someone to write a computer game starring the adroitest-tongued creature?

An irony, Arkback the game is one of those programs which looks awful, and is in fact deeply wonderful. The soundtrack itself sits at the top of the screen, and you control his sticky tongue as it quivers through the air-hill. Slurping up eggs racks up the points, and watching fast-moving ants gives even more. But because, if the ants bite your extended tongue you lose a life, and if you swallow a wriggly worm back to front you'll choke on it. Spiders pursue your tongue around the screen, and only by catching a queen spider can you see off all your enemies.

MSX

Program On Type
Arcade Price £1.99
Micro MSX
Supplier Bug
 Byte, address as above.



Program Chicken Chase
Type Arcade Price £1.99
Micro MSX
Supplier Bug
 Byte, address as above.

continued on page 78

New Releases

► continued from page 75

Devoted to pretty much fairly effects or complex coding, *Aardani* nonetheless had as all in which as the emphasis became more and more frantic. Buy a copy for your favourite borrowing quipped.

Program Stern Type Arcade Price £1.99 Micro MSX Supplier Mastertronics, address as above.



Spectrum

Program Coc-Our Type Arcade Price £8.95 Micro Spectrum 48/128 Supplier Minkoten, Unit 15, The Western Centre, Western Road, Blackpool, Merseyside PO12 1PW.

Program Phantom Type Arcade Price £1.99 Micro Spectrum 488 Supplier Code Masters, address as above.

Program Vampire Type Arcade Price £1.99 Micro Spectrum 488 Supplier Code Masters, address as above.

Program Rogue Trooper Type Arcade Price £8.95 Micro Spectrum 48/128 Supplier Pantea, 4 Little Essex Street, London WC2R 3LF.

Grossing North is the name of the game in this English adaptation of 2000 AD's future war comic strip. Generic infantryman Rogue must fight his way through the hostile environment of his Earth, fighting off enemy troops and his own Southern horrors who regard him as a traitor. To the top left

is a screen giving a local map display, to the right a status area showing the amount of ammunition, number of medical packs, and number of weapons recovered.

The tapes are the objects of Rogue's quest; needed to prove the involvement of a Southern general in the massacre of the generic infantrymen, the eight tapes are hidden among minefields, wreckage, shattered buildings and hostile environments, all depicted in an unusual, sketchy monochrome style. The end result looks quite unlike any other 2-D perspective scrolling landscape arcade shoot-'em-up strategy adventure on the market.

Programmed by Design Design and faithful to the original comic strip — the backstreet baddies Helm, Gurner and Ragner throw in the odd warning of danger or piece of advice — *Rogue Trooper* is so good you can almost taste the ChemClouds as you wade through the Gourn Sea.

Program The Ice Temple Type Arcade Adventure Price £7.95 Micro Spectrum 48/128 Supplier Bubble Bus, 87 High Street, Torrington, Kent TN9 1PQ.

Program Alien Type Strategy Price £1.99 Micro Spectrum 488 Supplier Bug Byte, address as above.

Hold your horses — this isn't *Alien*, the game of the sequel, due out soon (ah! from Electric Dreams, but a re-run of *Alien* singular now out as *Bug Byte's* budget label.

When originally released by Bug Byte undername *Alien Games*, *Alien* received a pretty mixed bag of reviews. The graphics were, well, let's say utilitarian, the game play ponderously slow to start with.

All this is still true, but there is actually a good game in here struggling to get out. Once the action gets going, with your characters spread out about the spaceship, wondering who the alien is going to get next becomes absorbing, and, surprisingly in a computer game, very suspenseful.

It's no good at all if you want flashing lights and hip-hop sound effects whizzing

from one multi-coloured screen to the next. If anything, it's more like one of those board games that you don't start playing unless it looks as though the rain's set in for the whole weekend. Worth considering at £2.95.



Program They Dole a Million Type Strategy/Adventure Price £8.95 Micro Spectrum 48/128 Supplier Analasch, address as above.

Program Colosseum 4 Bridge Type Card Game Simulation Price £11.95 Micro Spectrum 48/128 Supplier COS, COS House, Beckers Road, Doncaster DN2 4AD.

Program Malheur Type Arcade Price £7.95 Micro Spectrum 48/128 Supplier Green, 6 Central Street, Manchester M2 5P5.

Program The First Type Adventure Utility Price £4.95 Micro Spectrum 48/128 Supplier Giffith, 2 Park Crescent, Bury, South Gloucestershire QF9 5HD.

And *The Gull* story goes on.

Having had *The Gull* itself, *The Duckman*, and *The Planet*, we now have *The Press*.

This latest component in Giffith's adventure-writing library is a text compressor which allows you to get far more text into your Gullid adventures than was previously possible.

The package includes a companion program, called *Expanders*, which allows you to add further text beyond the current upper memory limit.

By using these two utilities together — by subsequently expanding and compressing your text — Giffith says you should be able to create 40K of text only adventures.

Furthermore, *The Press* adds many of the existing features of *The Planet*, so you may be able to drop the latter package from your shopping list.

Among these extras are six sound effects, two kinds of key-locks, the ability to use alternative typefaces, picture on and picture off commands, and Ram load and save.

The manual is necessarily complex but well-written, and implementing these features should not be difficult, provided that you understand *The Gull* and *The Planet*.

There are one or two drawbacks. There's a problem with basic keywords — in, Out, Paper, and so on — which must not be used anywhere in your adventure text.

The time taken by *The Press* can run from half an hour to ten hours, depending on the size of the database, and on whether you use Fast or Slow compression. *Slow* gives a better result, provided you can find something else to do for ten hours.

And the obvious drawback is that having to implement three or four different programs has taken *The Gull* a long way from the original idea of having an easy-to-use, general utility.

I hope that Giffith will soon take the trouble to do an extensive re-write of the whole affair and produce one coherent program.

That said, *The Press* can only add to the continued success of *The Gull*.

Admission will no doubt, level 4.

Program Gemini Type Arcade Price £2.95 Micro Spectrum 48/128 Supplier Mastertronics, address as above.

Program Speed King 2 Type Simulation Price £1.99 Micro Spectrum 48/128 Supplier Mastertronics, address as above.

Program The CF Zone Type Adventure Price £1.50 Micro Spectrum 48/128 Supplier Compass Software, 36 Globe Place, Norwich, Norfolk NR2 2PQ.

For the COMMODORE, AMSTRAD, BBC MICRO, ELECTRON

REPTON

THE ULTIMATE CHALLENGE

3



The Screen Editor



The Character Editor



Being pursued
by a Monster



The Time Bomb
is located



The Poisonous Fungus
grows naturally



Collecting a
Golden Coin

Are you ready for the ultimate challenge?

Our original Repton game was immediately acclaimed as a wonderfully new concept, a game requiring dexterity to complete its arcade-style screens, and clever logical thinking to solve its strategic puzzles. Repton 3 involves solving Repton from cleverly-constructed traps of falling souls whilst dodging the vicious monsters and hounding spirits. This is an astounding game leading new heights in BBC micro adventures, enthused the *Electric Blue* magazine.

Last Christmas saw the release of Repton 3, larger and much more challenging than before. Acorn User's Technical Editor Bruce Smith wrote "Repton 3 is better than anything I've played on the BBC Micro or Electron. Brilliant".

Now, completely rewritten and improved for the Commodore, Amstrad, BBC Micro and Electron, we proudly present Repton 3. For the first time, a screen-designer is included, by its device screen that will puzzle your friends, that too if you can solve that newly-designed screen. Another innovation is the character designer which enables you to design your own monsters, rocks, eggs, spirits, diamonds... only or all of the game's characters can be redefined at you wish.

Repton 3 is much larger than its predecessors — it has a fascinating screen, and players who are skilful enough to complete them will see enter our prize competition described below. All the favourite Repton characters have been retained, together with several new features: a creeping poisonous fungus which grows at an alarming rate, time bombs and time capsules for puzzles in the 3D dimension, and golden coins as well-deserved rewards for our endeavours. **Can YOU complete Repton 3?**

PRIZE COMPETITION

If you complete Repton 3, you can enter our competition. Prizes include over £200 in cash, with letters, mugs, badges and pens for runners up.

COMMODORE 64/65 4 AMSTRAD CPC 464/484/485
BBC MICRO B, B+, MICROV, MASTER COMPUTER 4 ELECTRON

Commodore Cassettes	£9.95	BBC Micro Cassettes	£9.95
Commodore Disk	£24.95	BBC Micro Disk	£19.95
Amstrad Cassettes	£9.95	Master Computer Disk	£14.95
Amstrad Disk	£14.95	Electron Cassettes	£9.95

SUPERIOR SOFTWARE
A Division

ACORN SOFTWARE

The screen pictures
above show the
BBC Micro version of
Repton 3.



OUR GUARANTEE

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The copyright question

The personal passer about software copyright, and the right or otherwise of a buyer to copy software, has raised its head again in our Letters page (see page 14 this week).

The debate, sadly, seems endless with the same old arguments being trotted out on both sides.

There are some of us just, me at any time, who believe and still believe that software publishers had adequate recourse to the law without further tinkering with the Copyright Act and other legislation.

Quite simply, unless the publisher specifically says anything to the contrary, you can't copy software.

But so far as I'm aware, nobody in the world has been prosecuted for copying software, provided that the copy was for their own use. Indeed, within both the letter and the spirit of the law, many more people are liable for prosecution than are actually being caught.

The law is being applied to catch the professional pirates. Which is not to say that because you're not selling hundreds of copies down the market on Saturday, you can give copies to your friends, receive other copies in return, and everything's fine.

Arguments about security back-ups of games cassettes just don't wash. I've been using cassette software for more than four years and never had a tape go wrong.

Popular Computing Monthly

does not accept advertisement for tape-tape copiers. We simply don't see a legitimate use for them.

Disk-based software is a different matter. Computer discs are the most mischievous critters in the known universe. You can walk on them, stand a magnet on them, pour coffee on them, and often they'll continue to work perfectly. Usually, you can destroy one with a stem-look or a harsh word.

But other arguments apply. It doesn't seem unreasonable for a software company to copy-protect a games disc provided that it is prepared to replace that disc if something goes wrong. Going without a game for a week or so is no great hardship.

But professional software is different. If your livelihood depends on your having access to a program and its data, you would be foolish to buy copy-protected software. If a disc fails, it's essential that you have another to hand — right now.

The catch here for software companies is that business users are among the worst software copiers. Firms which buy one copy of Wordstar and then make 20 copies for their employees are commonplace. It's not unknown for a firm to have 21 copies of Wordstar, never having bought an original.

The dilemma with business software is that the users have a genuine grievance if they can't make back-ups, but the software houses have

a fair case for preventing it because they're losing thousands of sales.

No suggested answer to this is to buy only unprotected software — and don't give away copies. Or accept them. Of course, many computer users will continue to trade copied software.

But spare us the well-trodden arguments, especially the one about high prices. Defending piracy on the grounds that the software costs too much is like saying it's okay to steal a Rolls-Royce because it costs more than your Ford Escort.

Theft is theft, whether you use a crowbar or a bit-copier.

The last word on the subject (some chance!) is to repeat: play fair by the software companies. Accepting a copy from a friend to check out a program doesn't hurt anyone in itself.

If you like the software, go out and buy it. That way the copy makes a sale and everyone is happy. If you don't like it, throw it away or record over it. No harm done.

But habitually using copies instead of buying the software is stealing. Stealing from the software house, and stealing from the programmer.

But if you're going to be a thief, be an honest one. No justifications, no waffle about high prices, no gleaming to your friends about "cracking the code".

Just tell them you steal software.

Peter Worlock

NEXT WEEK

SPECIAL SUPPLEMENT

Buyers' guide to hardware

If you're hoping to get a computer for Christmas, or planning to treat yourself, then you can't afford to miss *Popular's* Hardware Buyers' Guide.

There'll be a comprehensive guide to the Big Ten computers on the market — the Plus 2s, the CPCs, the PCWs, Commodores, Amis and Acorns.

If you're not so interested in the mainstream home micros, try the guide to games consoles. Or, if you want something more up-market, we look at the present boom in cheap IBM PC compatibles. And if money's a bit tight, we've got a survey of some of the micro bargains around at the moment.

Hardware

Amstrad isn't the only company with a newly launched PC compatible. Tandy's 1000EX comes into exactly the same category.

Movie Quiz

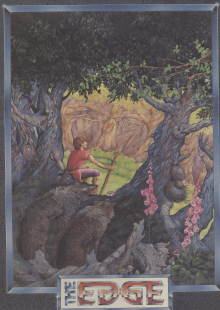
We name names and cite the winners of the Spectrum Plus 2s, the Star printers, and the Massmart's joystick in our Grand Autumn Movie Quiz.

Hackers



Fairlight

Chronicles of the Land of Fairlight
2. Trail of Darkness



EDGE

The Epic continues...

Fairlight 1 (*The Light Revealed*) swept virtually every award last year. Now in this second part of the epic "Chronicles" follows one of the longest-running masterpieces will not be disappointed. *Trail of Darkness* is probably the first true 128K Spectrum game made local for 48K Spectrum, and features more than a year of development and improvement to the revolutionary "3D Worldmaker" routines.

AMSTRAD £8.95
ZX SPECTRUM £7.95
COMMODORE 64 £8.95

Yie Ar KUNG FU II



The officially endorsed game by
Konami.

Sequel to the hugely successful Kung Fu simulation.

Fight more deadly opponents to combat as you develop your karate skills and advance to become a black-belt master.

Authentic fighting moves with 4 different locations create an outstanding and realistic atmosphere.

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